

PDM-2801C/2802C/2801C2/2802C2

SERVICE MANUAL

REVISED

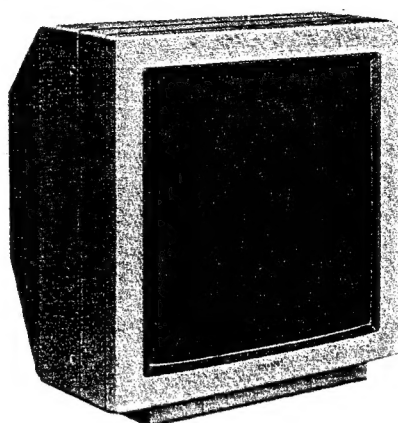


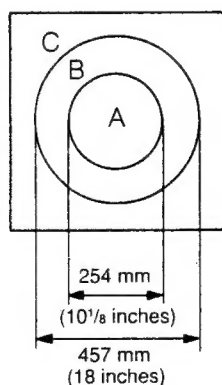
Photo DDM-2802C

US Model
Canadian Model
UK Model
AEP Model

DDM-2801C
Chassis NO. SCC-C08A-A
DDM-2802C
Chassis NO. SCC-C91A-A
DDM-2801C2
Chassis NO. SCC-C94A-A
DDM-2802C2
Chassis NO. SCC-C94B-A

SPECIFICATIONS

System	2,114 lines, 60 Hz non-interlaced, Raster scanning system (Horizontal display time 5.734 μ S)
Picture size	498 (w) \times 498 (h) mm (19.6 \times 19.6 inches)
Addressable pixels	2,048 dots (H) \times 2,048 lines (V)
Video amplifier	Bandwidth: 60 Hz - 300 MHz \pm 3 dB Pulse rise/fall time: 1.6 ns or less
Maximum brightness	More than 80 Nit
Geometric distortion	Within the area of a circle whose radius equals 1% of the picture height at all areas of the picture.
Picture tube	Super fine-pitch Trinitron color tube 0.31 mm phosphor trio pitch P22 phosphor 90 degree deflection 69% total optical transmission
Convergence	Zone A: \leq 0.3 mm Zone B: \leq 0.5 mm Zone C: \leq 0.7 mm



Inputs	
Video inputs R.G.B:	BNC, 50 ohms terminated 0.714 Vp-p, positive
Sync inputs HD, VD:	BNC, 75 ohms terminated TTL, negative
Power requirements	
For DDM-2801C/DDM-2802C	90 - 132 V, 50/60 Hz \pm 3 Hz
For DDM-2801C2/DDM-2802C2	180 - 264 V, 50/60 Hz \pm 3 Hz
Power consumption	Maximum 450 W (750 VA)

Others

Operating temperature	0°C - 40°C (34°F - 104°F)
Operating humidity	10% - 85%
Storage temperature	-20°C to +60°C (-68°F to +140°F)
Storage humidity	10% - 95%
Dimensions and weight	


Model	Dimensions including projecting parts (w/h/d)	Weight
DDM-2801C DDM-2801C2	Approx. 694 \times 673 \times 760 mm (27 3/8 \times 26 1/2 \times 30 inches)	Approx. 98 kg (216 lb)
DDM-2802C DDM-2802C2	Approx. 690 \times 729 \times 776 mm (27 1/4 \times 28 3/4 \times 30 3/8 inches)	Approx. 108 kg (238 lb)

Design and specifications are subject to change without notice.



Trinitron Data Display Monitor
SONY®


SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

CAUTION!!

DO NOT USE THE EXTERNAL DEGAUSSER TO DEMAGNETIZE THE SCREEN.
BE SURE TO USE THE DEGAUSS SWITCH ON THE FRONT PANEL.

**ATTENTION AU COMPOSANT AYANT RAPPORT
A LA SÉCURITÉ!!**

LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DU CIRCUIT QUI SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT SONT IDENTIFIÉS DANS CE MANUEL. SUIVRE LES PROCÉDURES QUAND LES COMPOSANTS CRITIQUES SONT REMPLACÉS OU LE FONCTIONNEMENT IMPROPRE EST SUSPECTÉ.

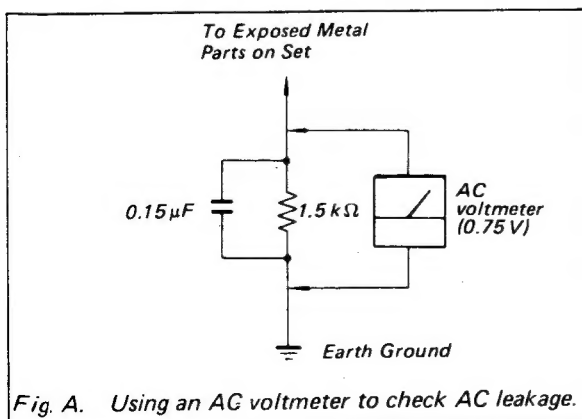
ATTENTION!!

NE PAS UTILISER DE DÉMAGNÉTISEUR EXTÉRIEUR POUR DÉMAGNÉTISER L'ÉCRAN.
UTILISER LA TOUCHÉ DE DÉMAGNÉTISATION (DEGAUSS) SUR LE PANNEAU FRONTAL.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the monopole antenna (if any).
Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.
8. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
9. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.



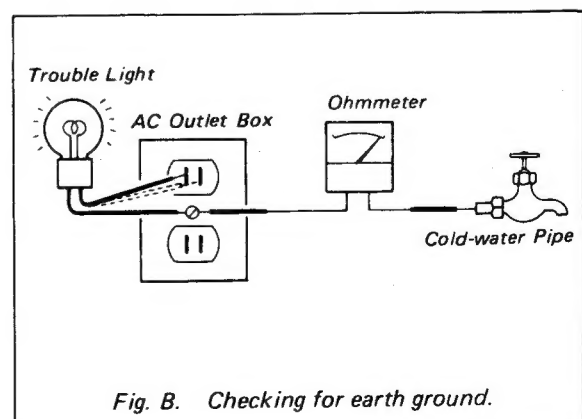
LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60-100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)



Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Important—To insure that the complete system (including this peripheral) is capable of complying with the FCC requirements, it is recommended that the user make sure that the individual equipment of the complete system has a label with one of the following statements.

"This equipment has been tested with a Class A Computing Device and has been found to comply with Part 15 of FCC rules."

—or—

"This equipment complies with the requirements in Part 15 of FCC rules for a Class A Computing Device."

—or equivalent.

CONFIDENTIAL

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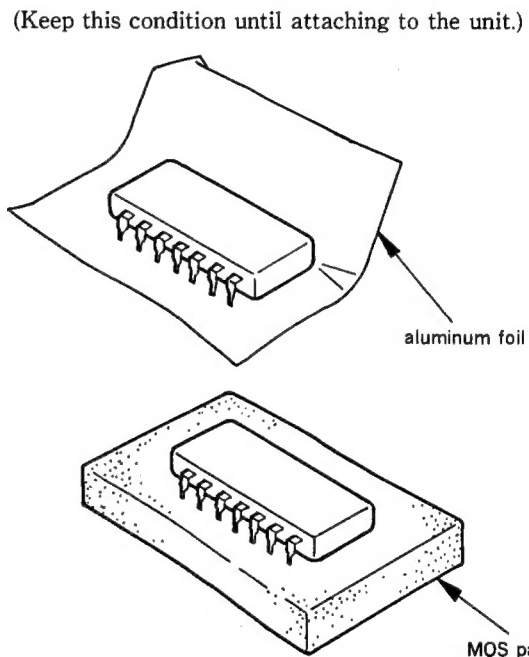
Take care with the following points when servicing and verifying.

【Cautions in handling semiconductors easily affected by static electricity.】

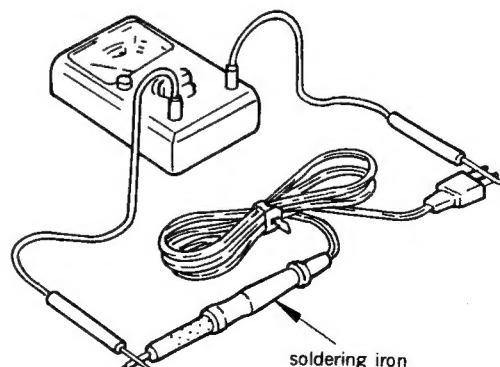
Discharging electrostatic charge with humans or clothes may break FET of IC and 2SK type according to the structure. Take care not to touch pins directly when handling. (Particular care should be paid in dry season and in dry area.)

Cautions in IC replacing

1. Put it in the MOS pack so that all terminal are the same electric potential, or store it wrapping up in aluminum foil.



2. Check that the tip of soldering iron is not leaked using a tester. If it is leaked, use another soldering iron.



3. To set the same electric potential, touch work clothes, working desk, unit, patte

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• M 2 and M2A Board	(DDM-2801C ; Serial No. up-to 2,000,005) (DDM-2802C ; Serial No. 10,001—10,003) (DDM-2801C2 ; Serial No. up-to 2,000,003) (DDM-2802C2 ; Serial No. up-to 2,000,001)	
• M2B and M2C Board	(DDM-2801C/2802C/2801C 2/2802C2 ; Serial No. 10,001 and higher)	252
• M1 Board	(DDM-2801C ; Serial No. up-to 2,000,005) (DDM-2802C ; Serial No. 10,001—10,003) (DDM-2801C2 ; Serial No. up-to 2,000,003) (DDM-2802C2 ; Serial No. up-to 2,000,001)	262
• M1 Board	(DDM-2801C ; Serial No. 2,000,006 and higher) (DDM-2802C ; Serial No. 2,000,001 and higher) (DDM-2801C2 ; Serial No. 2,000,004 and higher) (DDM-2802C2 ; Serial No. 2,000,002 and higher)	280
• M Board	(DDM-2801C ; Serial No. 2,000,006 and higher) (DDM-2802C ; Serial No. 2,000,001 and higher) (DDM-2801C2 ; Serial No. 2,000,004 and higher) (DDM-2802C2 ; Serial No. 2,000,002 and higher)	280
• M Board	(DDM-2801C ; Serial No. up-to 2,000,005) (DDM-2802C ; Serial No. 10,001—10,003) (DDM-2801C2 ; Serial No. up-to 2,000,003) (DDM-2802C2 ; Serial No. up-to 2,000,001)	282
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SECTION 1

GENERAL

1-1. FEATURES

The DDM-2801 series is a super-high-resolution graphic display monitor which employs a raster scanning method.

Super high density graphic display

The extremely high resolution of 2,048 dots (horizontal) x 2,048 lines (vertical) per frame has been made possible through the development of a 300 MHz band width video amplifier.

20-inch by 20-inch useful screen size

The 32-inch Trinitron picture tube with an aspect ratio 1 : 1 presents a square picture.

Multi-layer optical coating

This minimizes reflections of ambient light.

1-2. PRECAUTIONS

This unit cannot be operated as a normal TV receiver/monitor.

Power requirement of each model

Operate the unit on the correct power supply as indicated below.

DDM-2801C, DDM-2802C	90~132 V
DDM-2801C2, DDM-2802C2,	180~264 V

Safety

- Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for a long period of time.

Installation

- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains) which might block the ventilation holes.
- Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, moisture, mechanical vibration, or shock.

Transportation

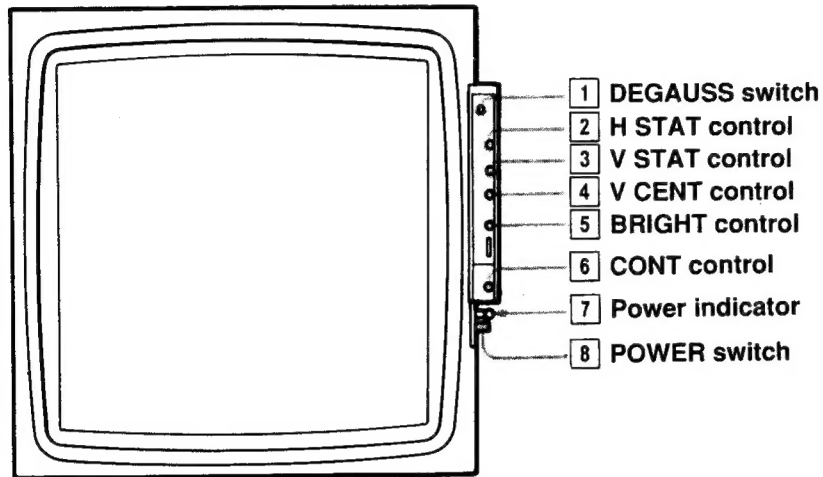
- Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit.
When shipping the unit to another location, repack it as illustrated on the carton.
- When carrying, handle it with care so as not to expose the unit to mechanical shock, especially to the picture tube.

If you have any questions or problems about this unit, consult your authorized Sony dealer.

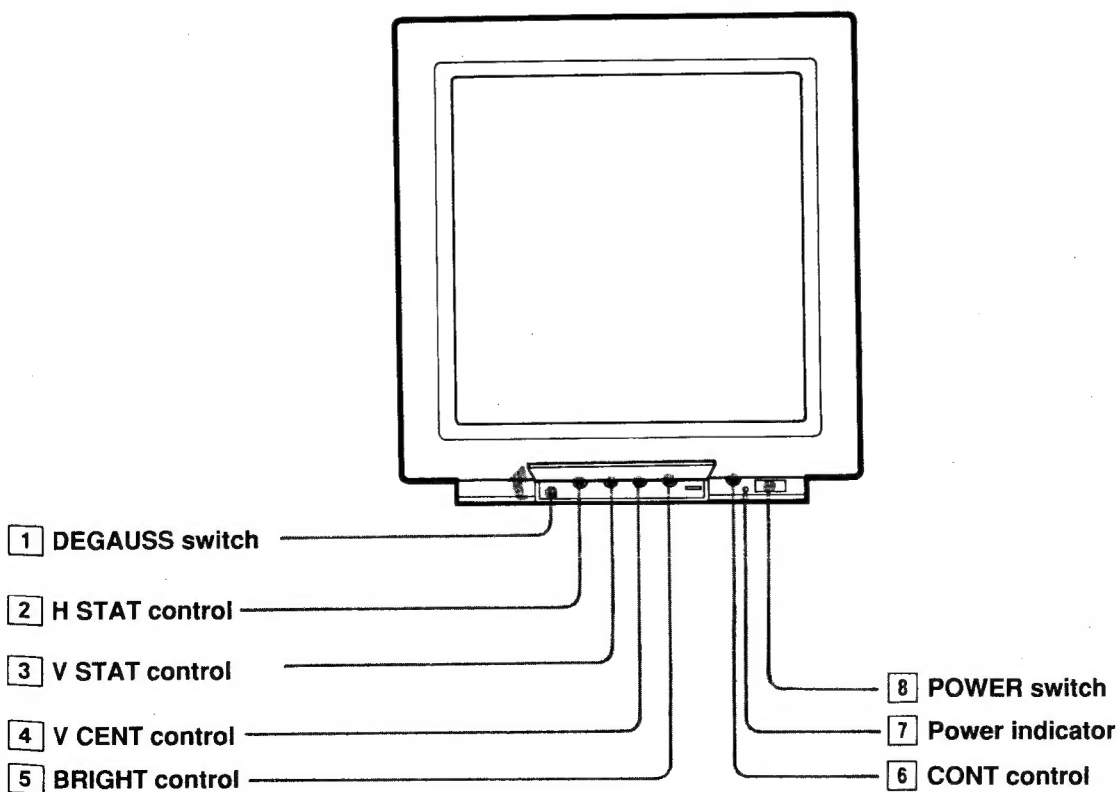
1-3. LOCATION AND FUNCTION OF CONTROLS

Front panel

DDM-2801C,2801C2



DDM-2802C,2802C2

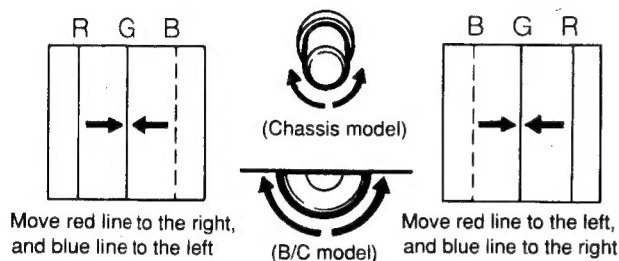


1 DEGAUSS switch

Demagnetizes the screen. Momentarily press this switch with the power turned on. Wait for 5 minutes or more before activating the switch again.

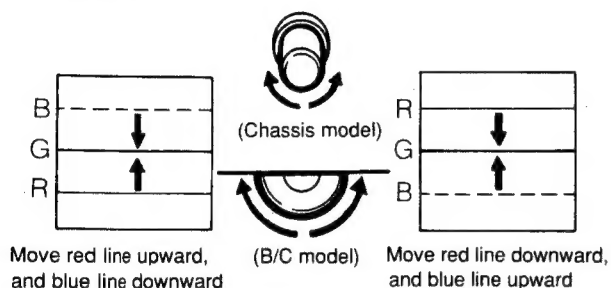
2 H STAT (horizontal static convergence) control

Adjusts the convergence at the center of the screen, so that the vertical red and blue lines converge with the green line.



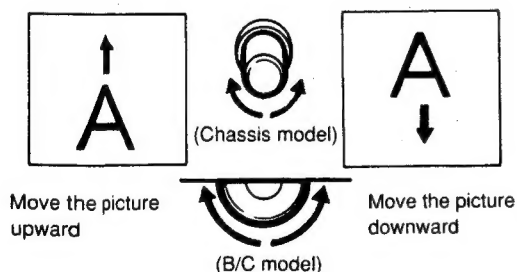
3 V STAT (vertical static convergence) control

Adjusts the convergence at the center of the screen, so that the horizontal red and blue lines converge with the green line.



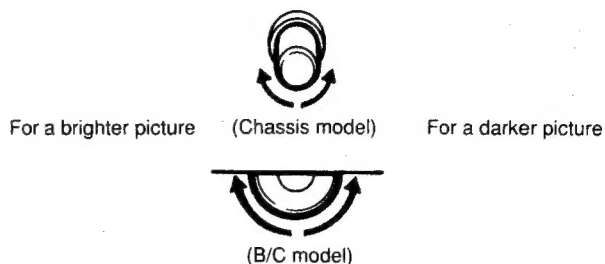
4 V CENT (vertical centering) control

Adjusts the vertical position of the picture.



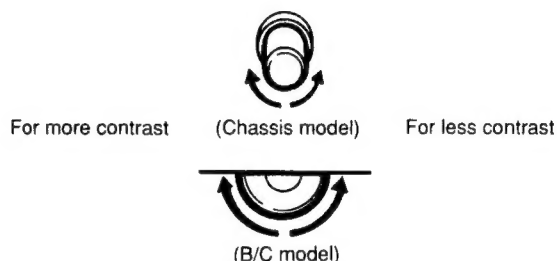
5 BRIGHT (brightness) control

Adjusts the picture brightness. Normally set the control at the center detent position.



6 CONT (contrast) control

Adjusts the picture contrast.



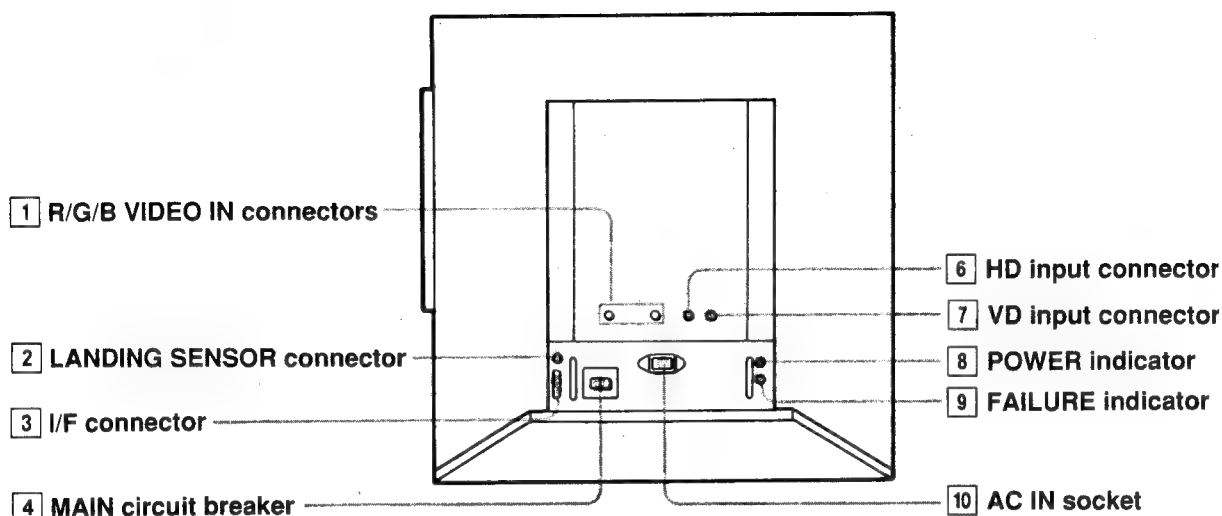
7 Power lamp

Lights when the POWER switch is turned on.

8 POWER switch

When the MAIN circuit breaker on the rear panel is on, depress the POWER switch to turn on the display. At this time, automatic degaussing will be activated causing the picture to shake for about 5 seconds. To turn off the display, press the POWER switch again.

Rear panel



1 R/G/B VIDEO IN (input) connectors (BNC type)
Inputs the R (red), G (green) and B (blue) signals. The connectors are terminated at 50 ohms.

2 LANDING SENSOR connector (8 pin)*
This connector is used when adjusting uneven color by connecting the landing sensor.

3 I/F (interface) connector (D-sub 15 pin)*
This connector is used when externally adjusting distortion, convergence, color temperature, etc. by connecting the controller.

* Adjustments **2** and **3** are performed by a service engineer. Should the adjustment be required, please consult a Sony representative.

4 MAIN circuit breaker
Set this circuit breaker to the I (on) position when using this unit.



6 HD (horizontal drive) input connector (BNC type)
Inputs horizontal drive pulses (HD). The connector is terminated at 75 ohms.

7 VD (vertical drive) input connector (BNC type)
Inputs vertical drive pulses (VD). The connector is terminated at 75 ohms.

8 POWER lamp (green)
Lights when the POWER switch on the front panel is turned on.

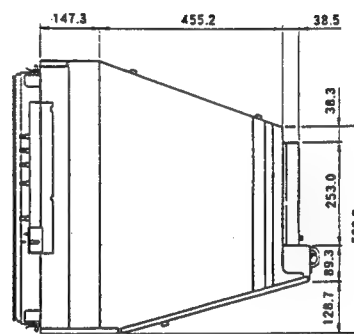
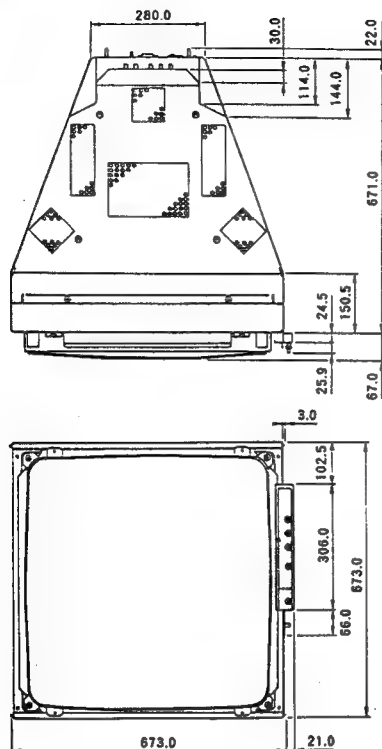
9 FAILURE lamp (red)
Lights when the circuits inside the unit are not functioning correctly. Should this lamp light, turn off the MAIN circuit breaker and consult a Sony representative.

10 AC IN (input) socket
Connect an AC power cord here.

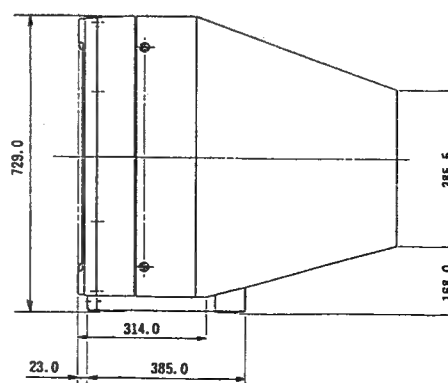
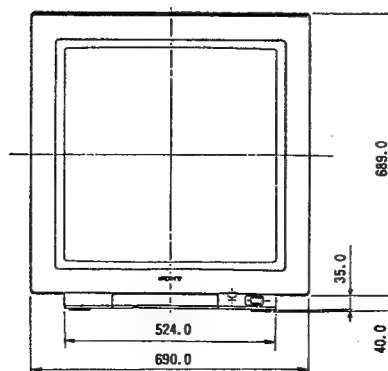
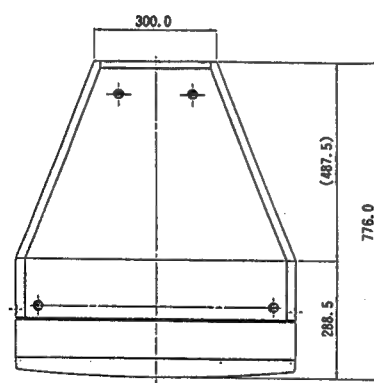
DDM-2801C/2802C DDM-2801C2/2802C2

1-4. EXTERNAL DIMENSIONAL DIAGRAM

● DDM-2801C/2801C2

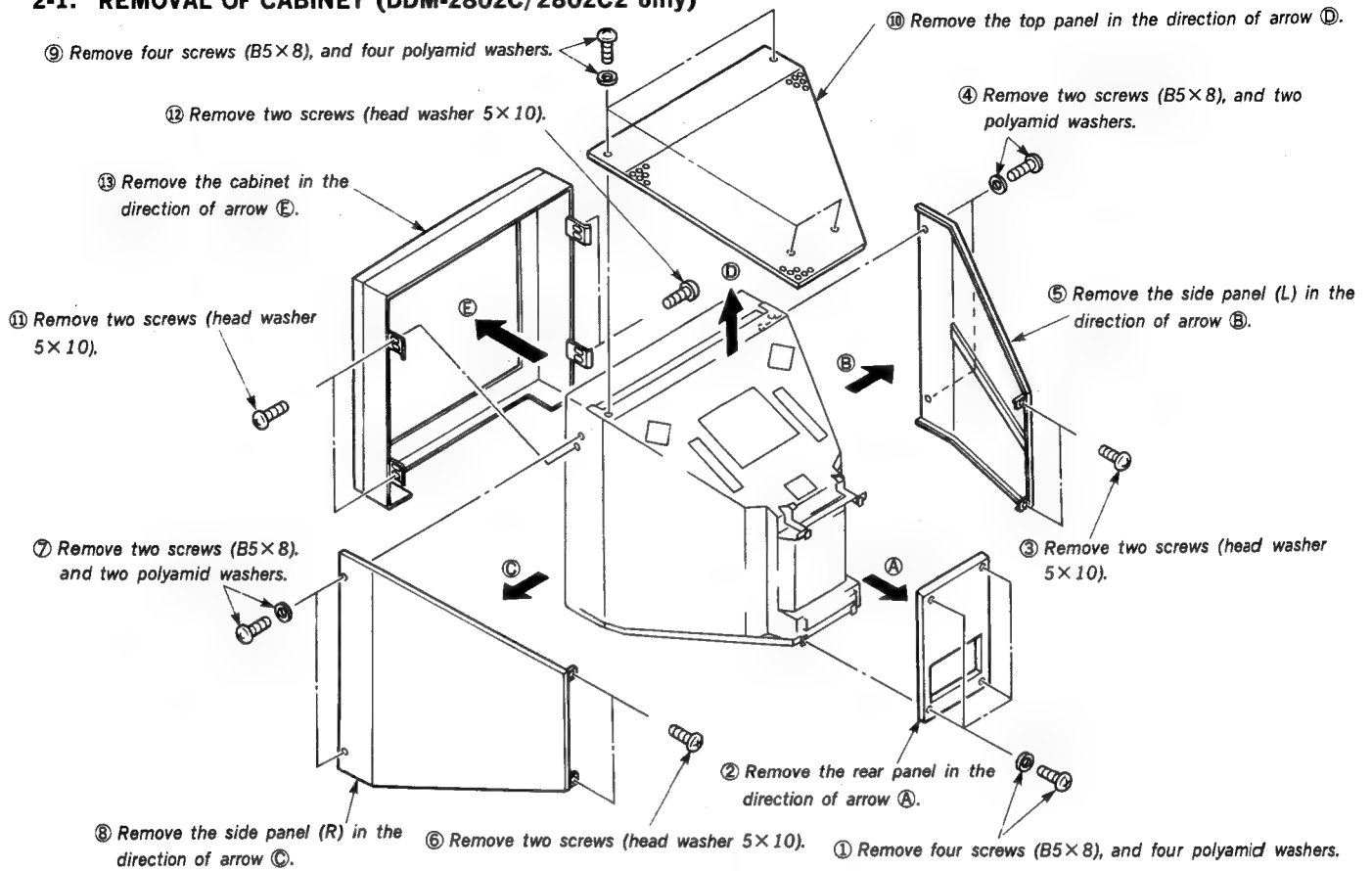


● DDM-2802C/2802C2

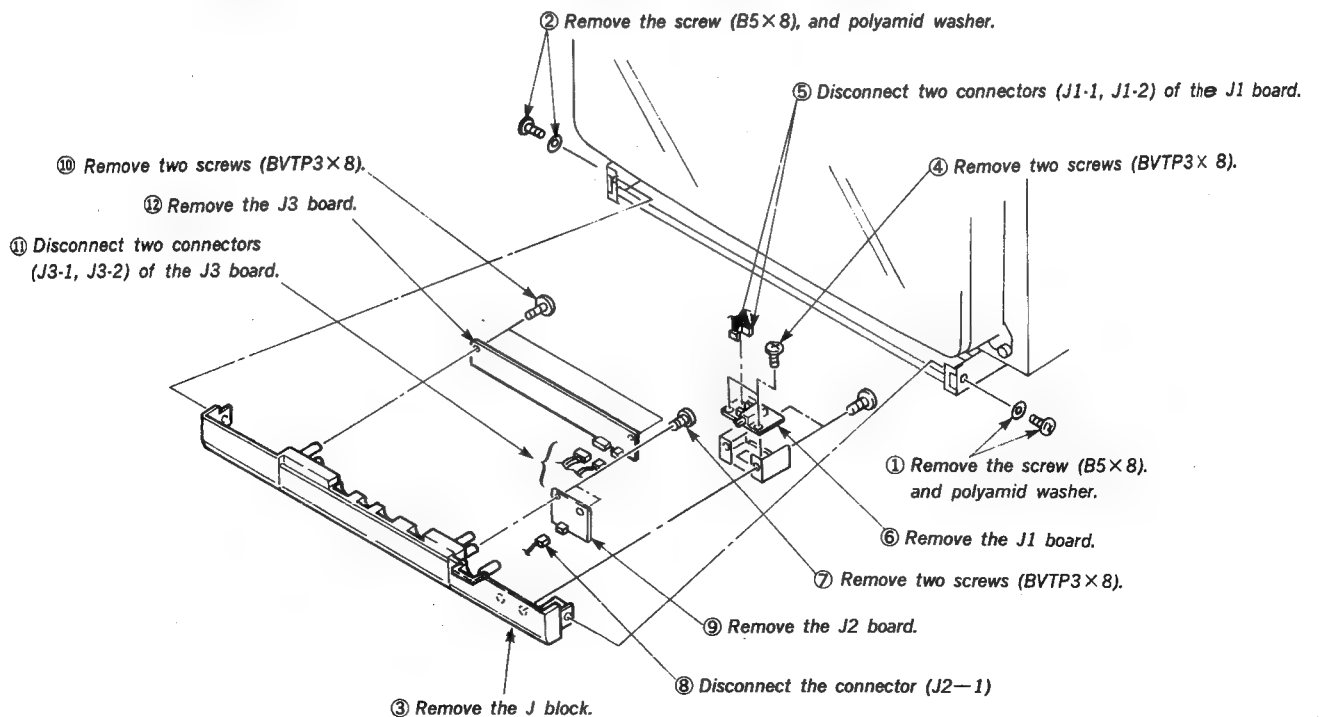


SECTION 2 DISASSEMBLY

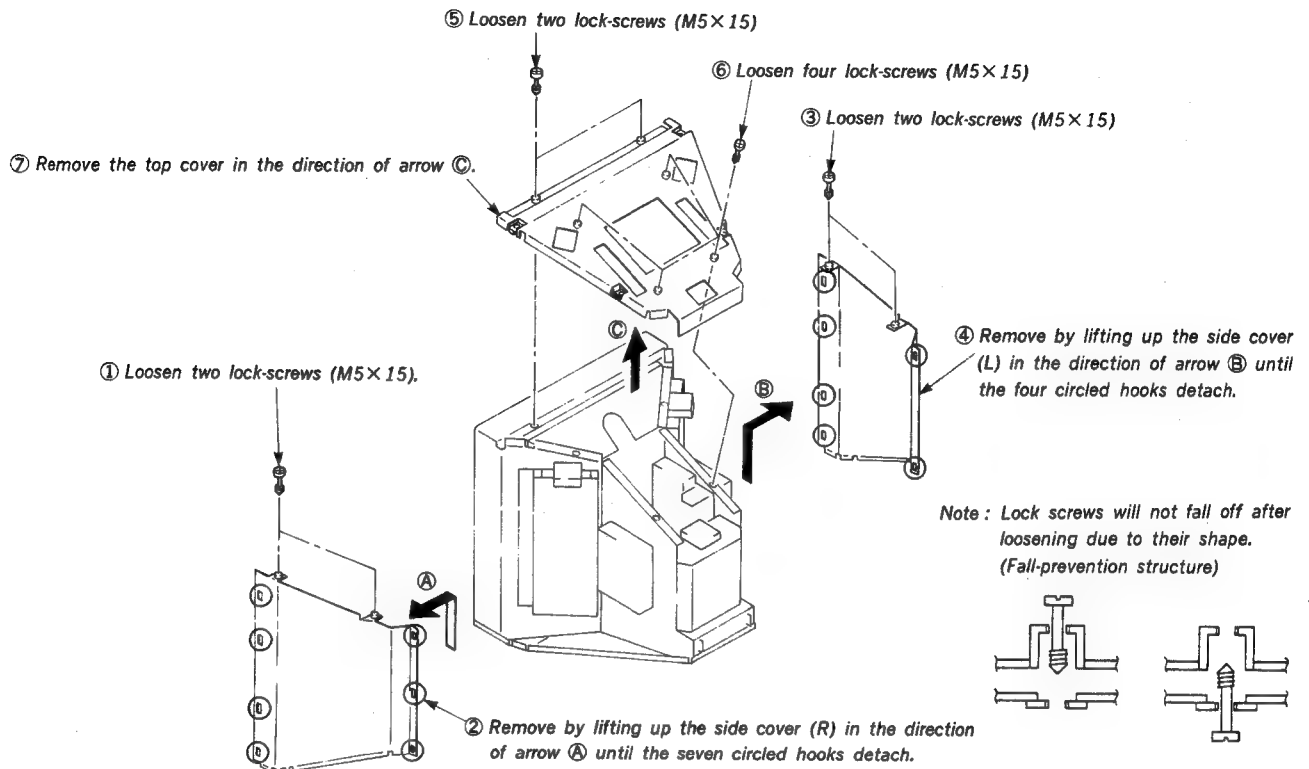
2-1. REMOVAL OF CABINET (DDM-2802C/2802C2 only)



2-2. REMOVAL OF J BLOCK AND J1, J2 AND J3 BOARD (DDM-2802C/2802C2 only)



2-3. REMOVAL OF TOP AND SIDE COVER



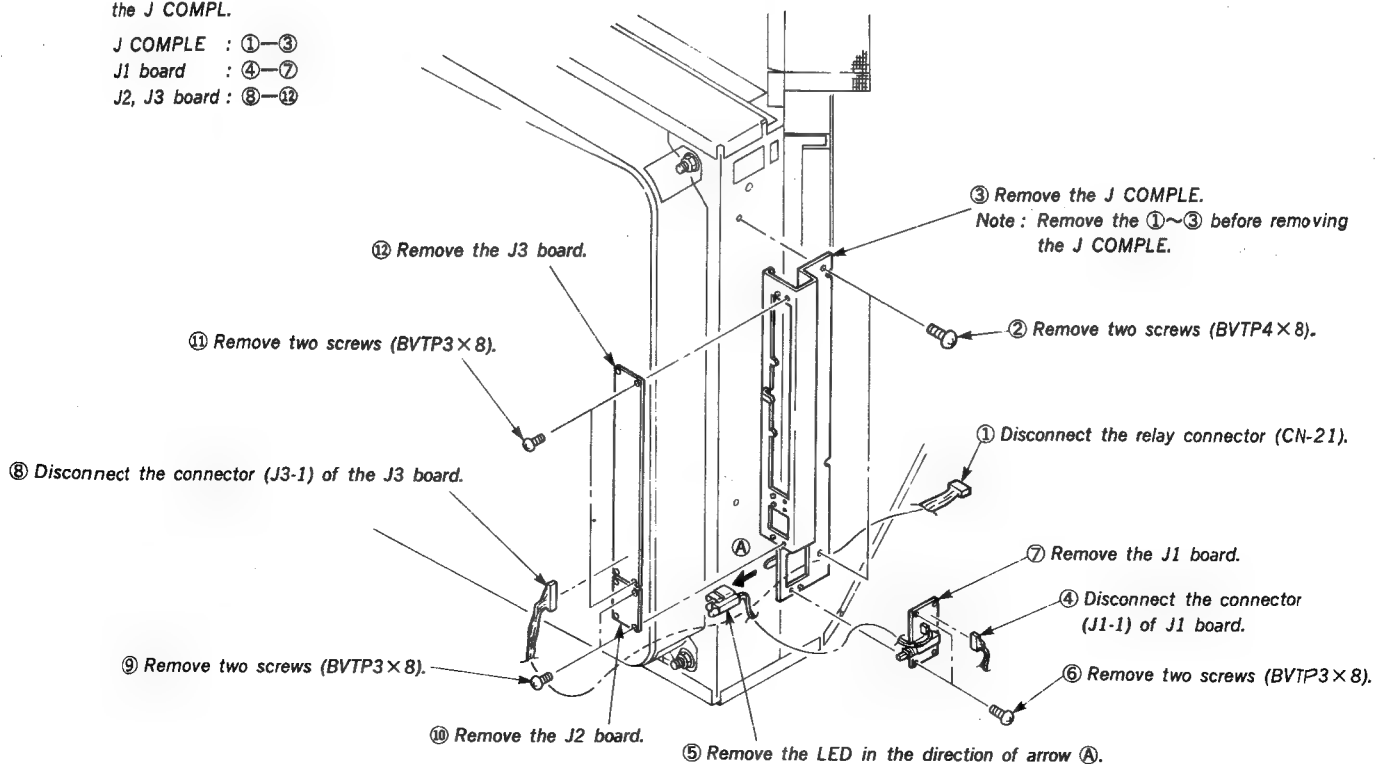
2-4. REMOVAL OF J COMPLE AND J1, J2, AND J3 BOARDS (DDM-2801C/2801C2 only)

Note: Remove the side cover (R) before removing the J COMPL.

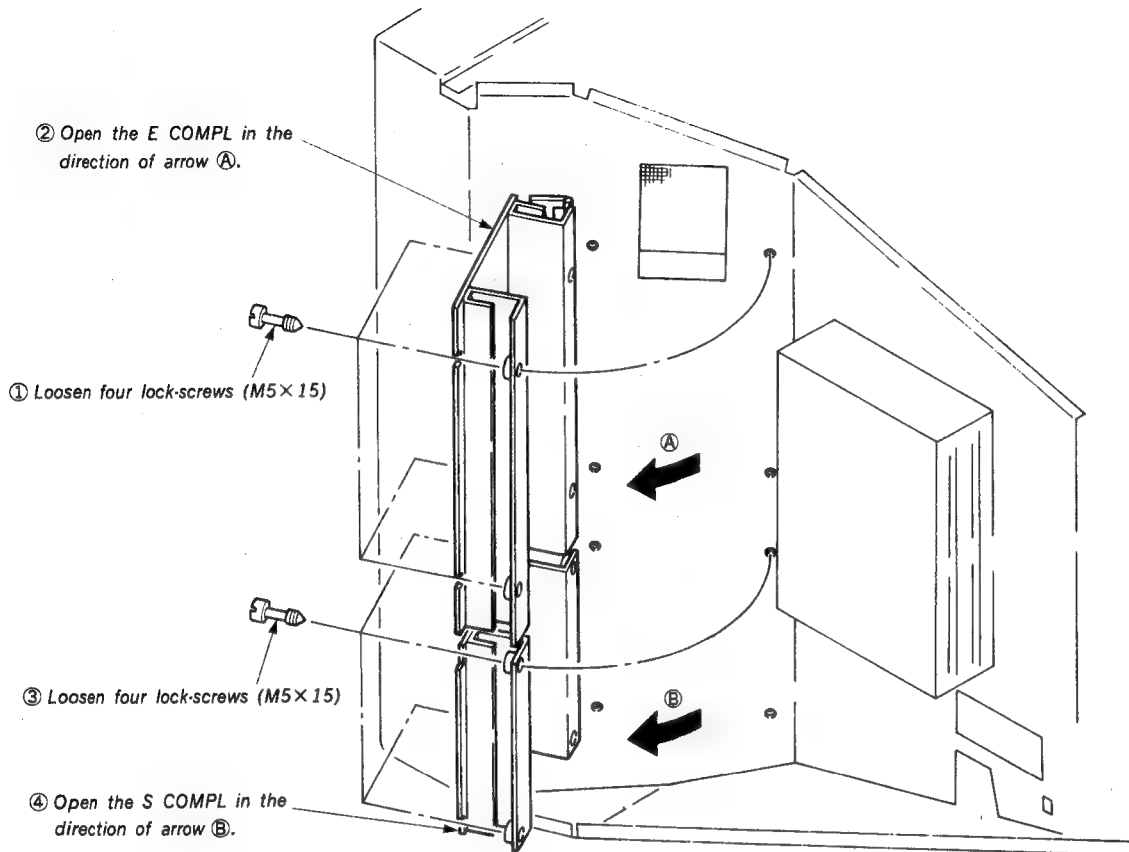
J COMPLE : ①—③

J1 board : ④—⑦

J2, J3 board : ⑧—⑫

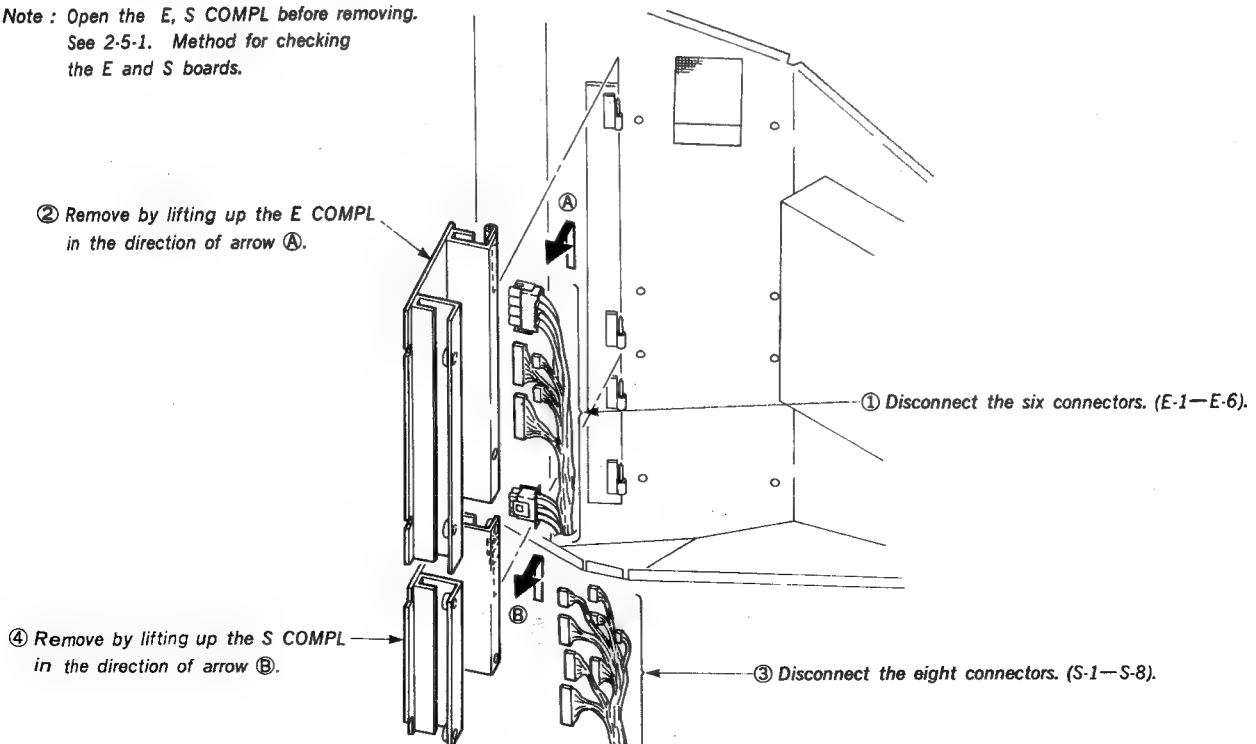


2-5-1. METHOD FOR CHECKING THE E AND S BOARDS

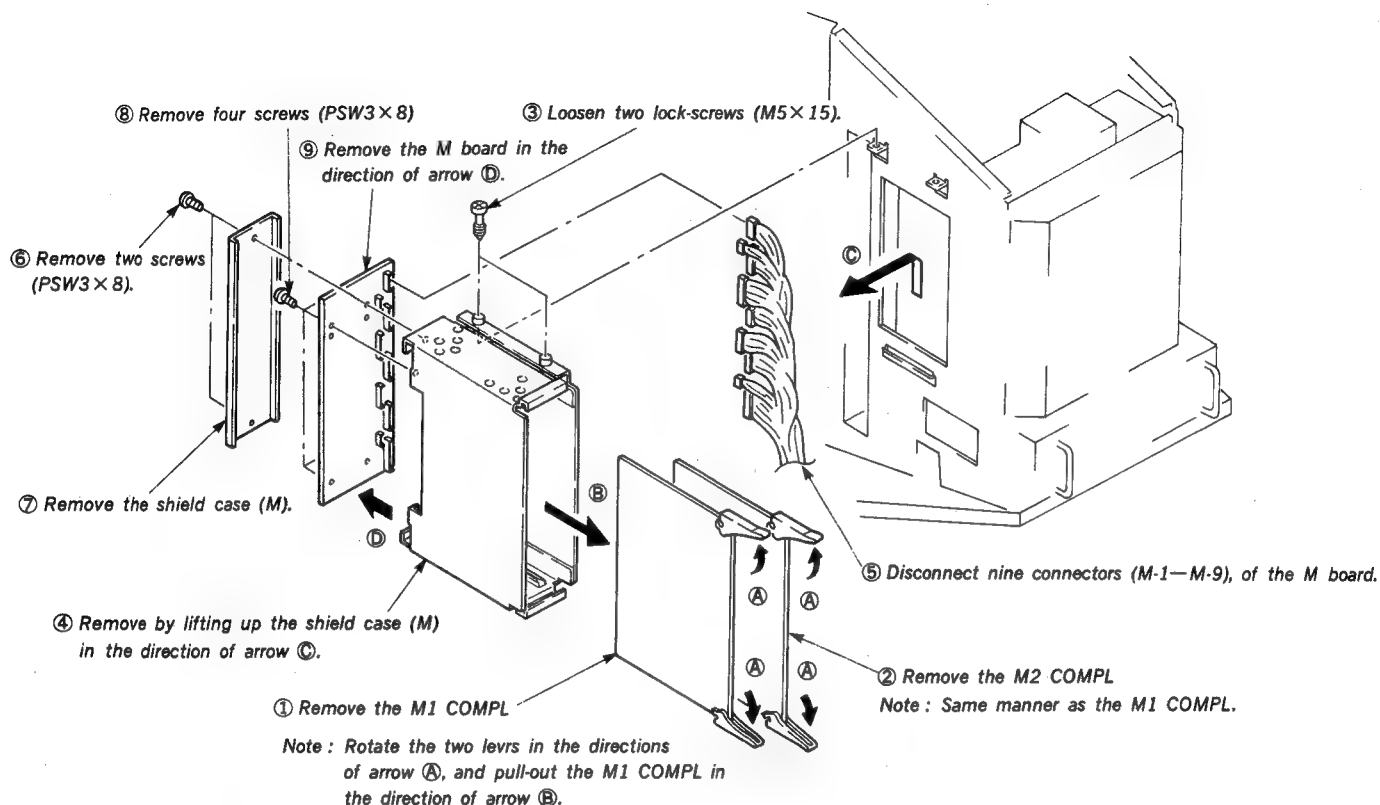


2-5-2. REMOVAL OF E, S COMPLE

Note : Open the E, S COMPL before removing.
See 2-5-1. Method for checking the E and S boards.

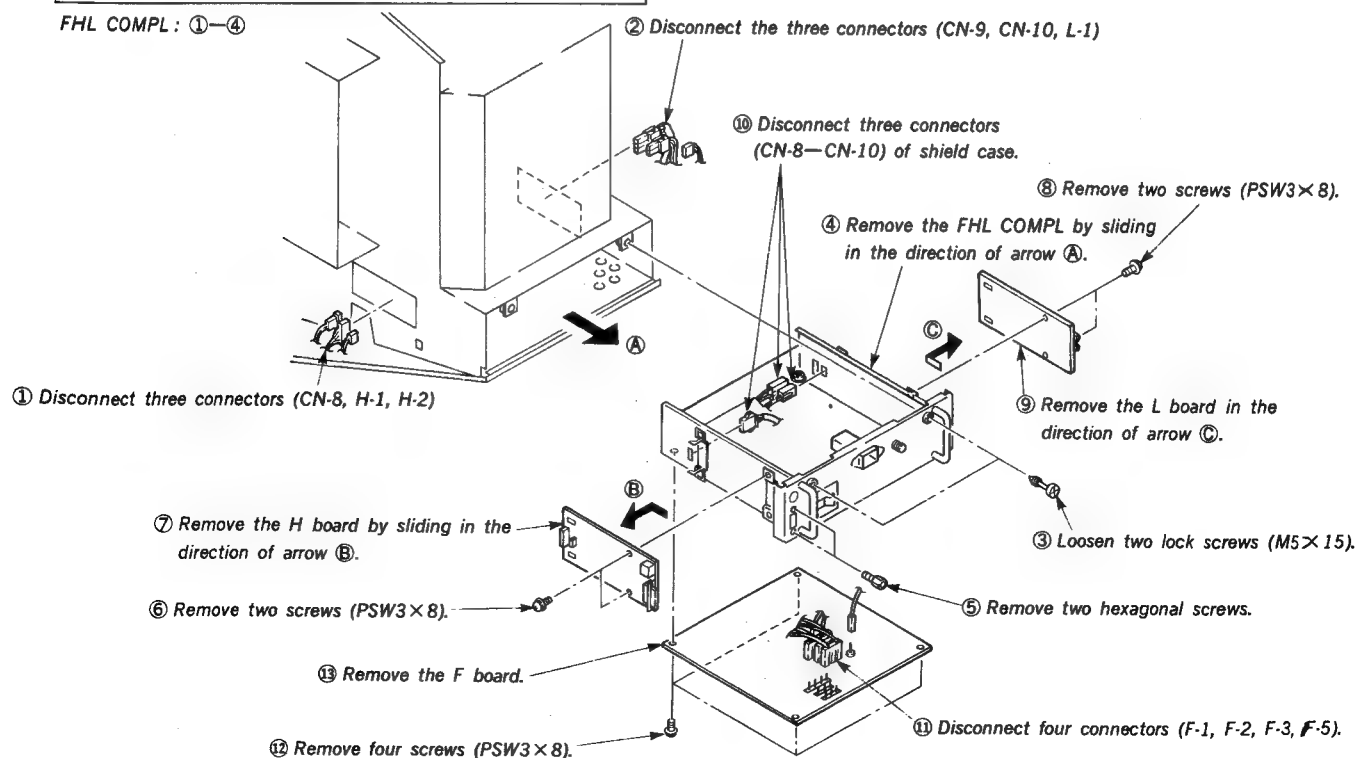


2-6. REMOVAL OF M BLOCK, M BOARD AND M1, M2 COMPL

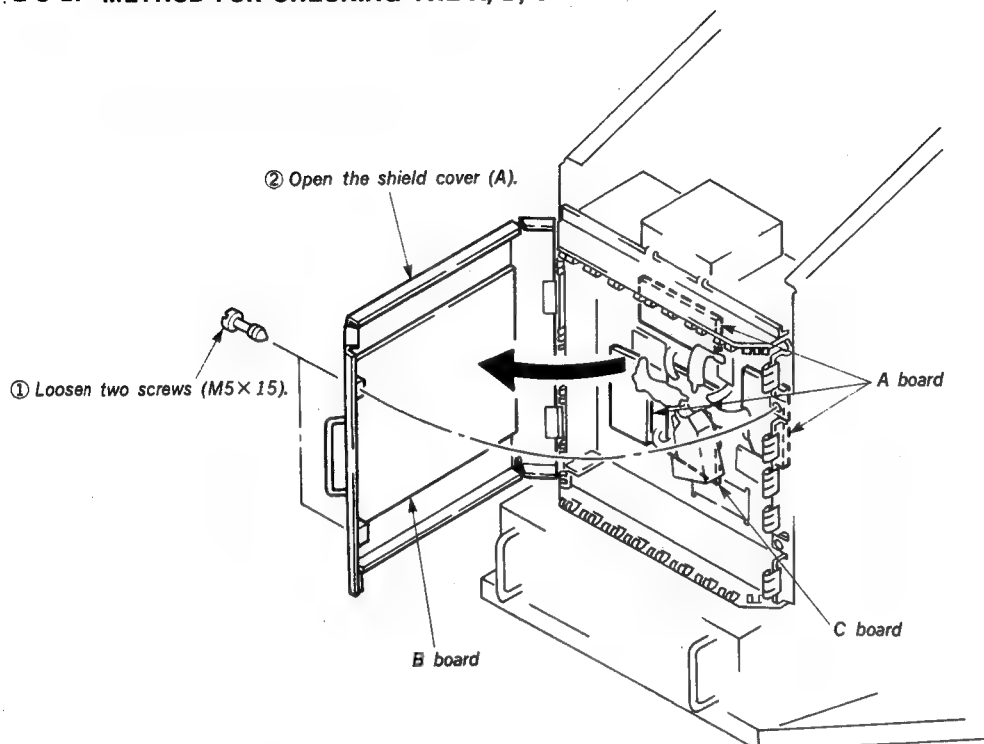


2-7. REMOVAL OF FHL COMPL AND F.H.L BOARDS

Note: Removal of the F board poses an electric shock hazard. Be sure to turn the power switch off and wait for at least one minute before starting work.



2-8-1. METHOD FOR CHECKING THE A, B, C BOARDS



2-8-2. REMOVAL OF ABC BLOCK AND A, B, C, U COMPL

Note : Open the shield cover (A) before removing.

(See 2-8-1. Method for checking the A, B, C Boards)

ABC block : ⑤, ⑧, ⑨, ⑭—⑲

A COMPL : ⑤, ⑩—⑬

B COMPL : ①—④

C COMPL : ⑤—⑧

U COMPL : ⑤, ⑧, ⑨, ⑭—⑲

④ Remove the B COMPL.

⑫ Loosen three lock-screws (M5×15).

⑪ Disconnect two connecting cables (J-1, J-2).

⑤ Detach six socket of AB board from C board and picture tube.

Three AB boards

Tweezers

Fig. A

⑥ Remove three screws (PSW3×8).

⑦ Disconnect three connectors (C-1—C-3), from the C board.

③ Remove four screws (PSW3×8).

① Disconnect six connectors (B-1—B-6) of B board.

② Disconnect five connecting cable (J-1—J-5) of B board.

New B Compl ⑬ Remove the A·COMPL (other two A COMPL).

⑩ Disconnect the connector (A-1).

⑮ Loosen two lock-screws (M5×15).

⑭ Disconnect the connector (CN-4).

⑧ Disconnect four lead wires. Note : The C board is removed.

⑯ Loosen two lock-screws (M5×15).

⑱ Disconnect two lead wires.

⑲ Remove five screws (PSW3×8).

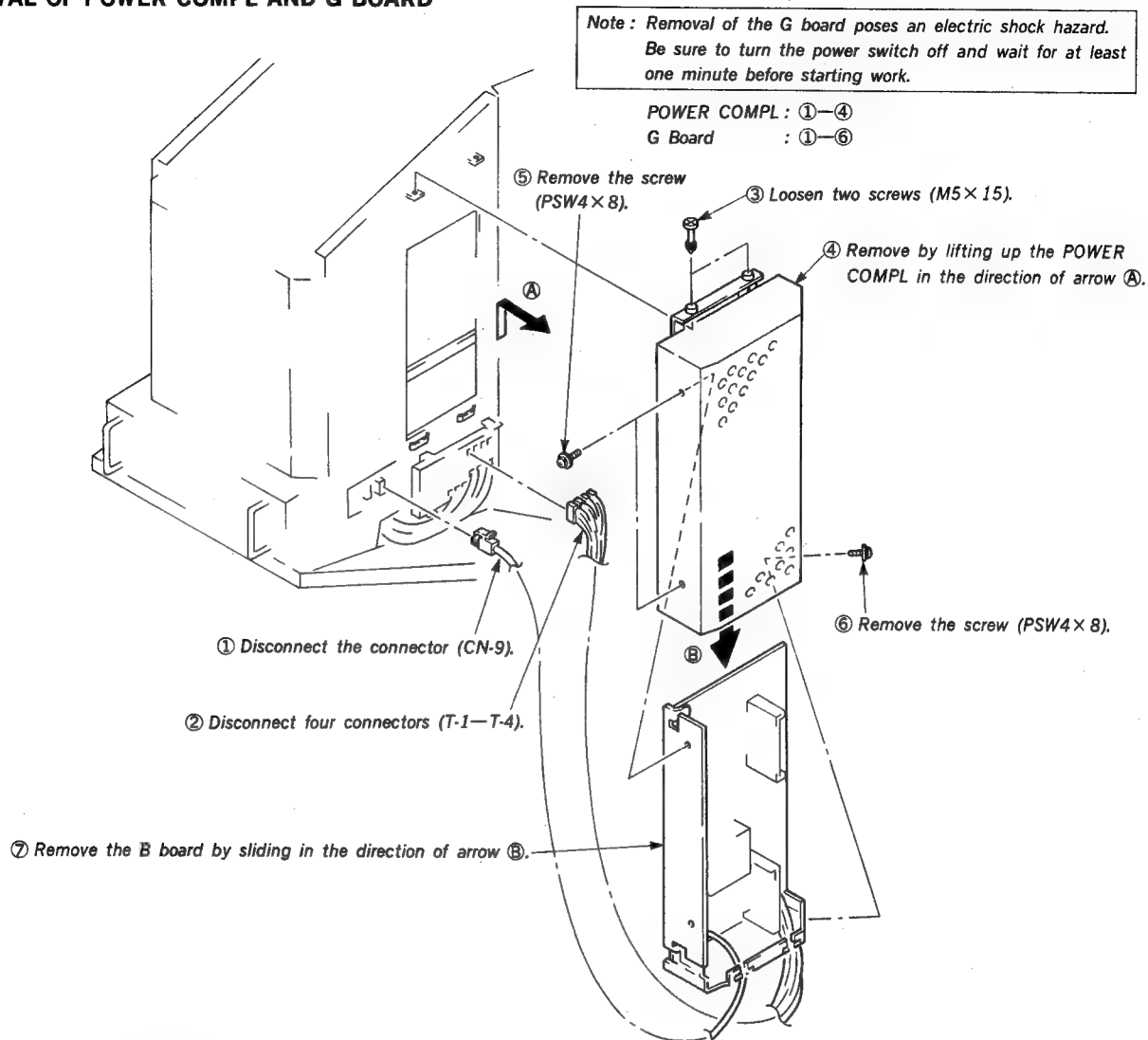
⑳ Remove the U COMPL.

⑲ Disconnect three connectors (CN-14—CN-16).

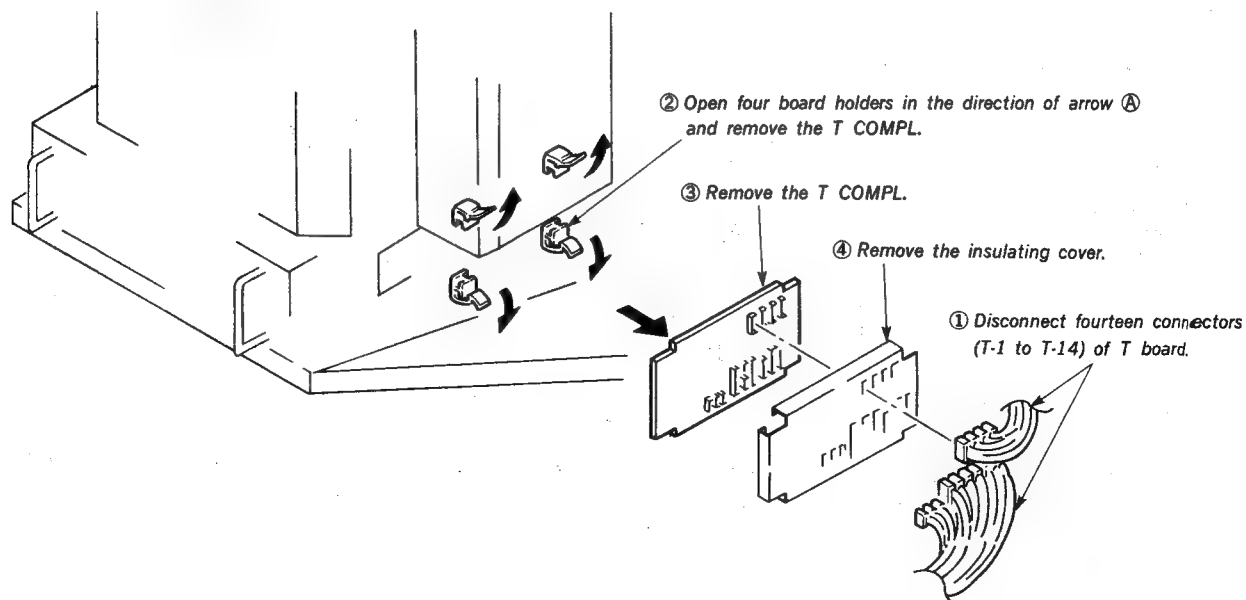
⑰ Slide the shield case (A) backwards.

⑨ Remove the C COMPL from the picture tube.

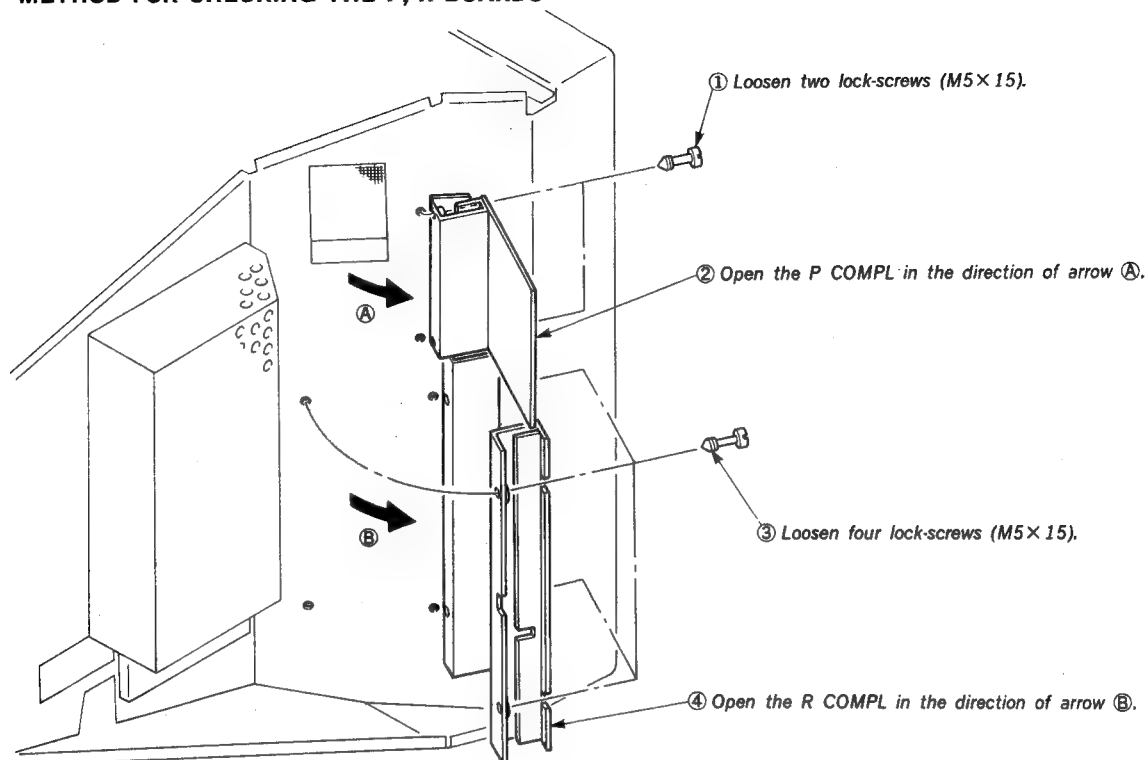
2-9. REMOVAL OF POWER COMPL AND G BOARD



2-10. REMOVAL OF T COMPL

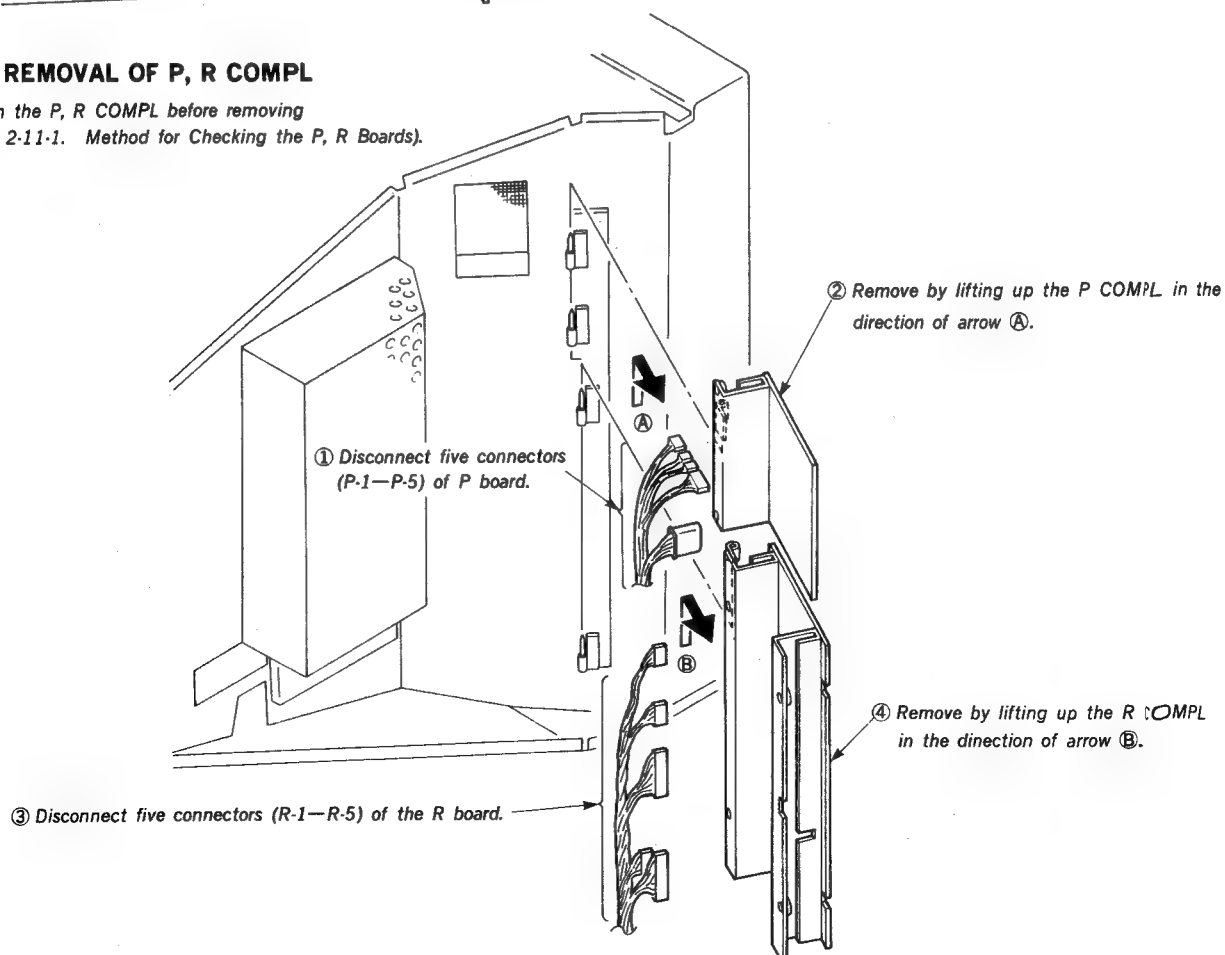


2-11-1. METHOD FOR CHECKING THE P, R BOARDS

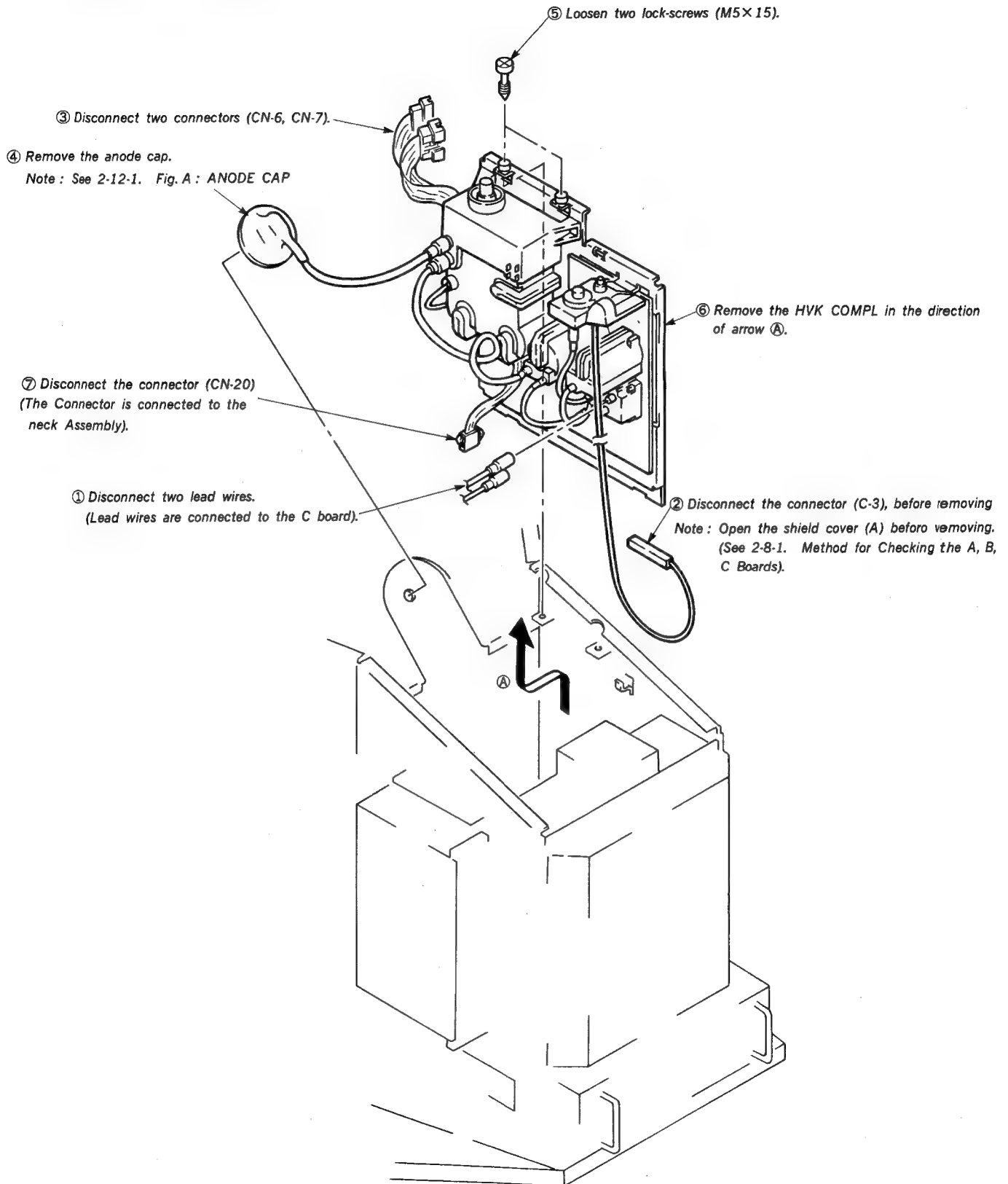


2-11-2. REMOVAL OF P, R COMPL

Note : Open the P, R COMPL before removing
(See 2-11-1. Method for Checking the P, R Boards).

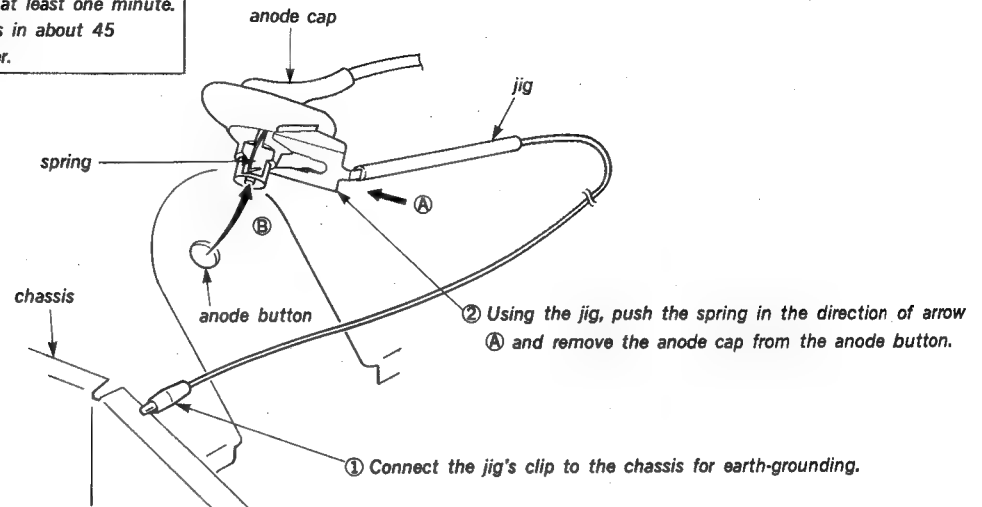


2-12. REMOVAL OF HVK COMPL



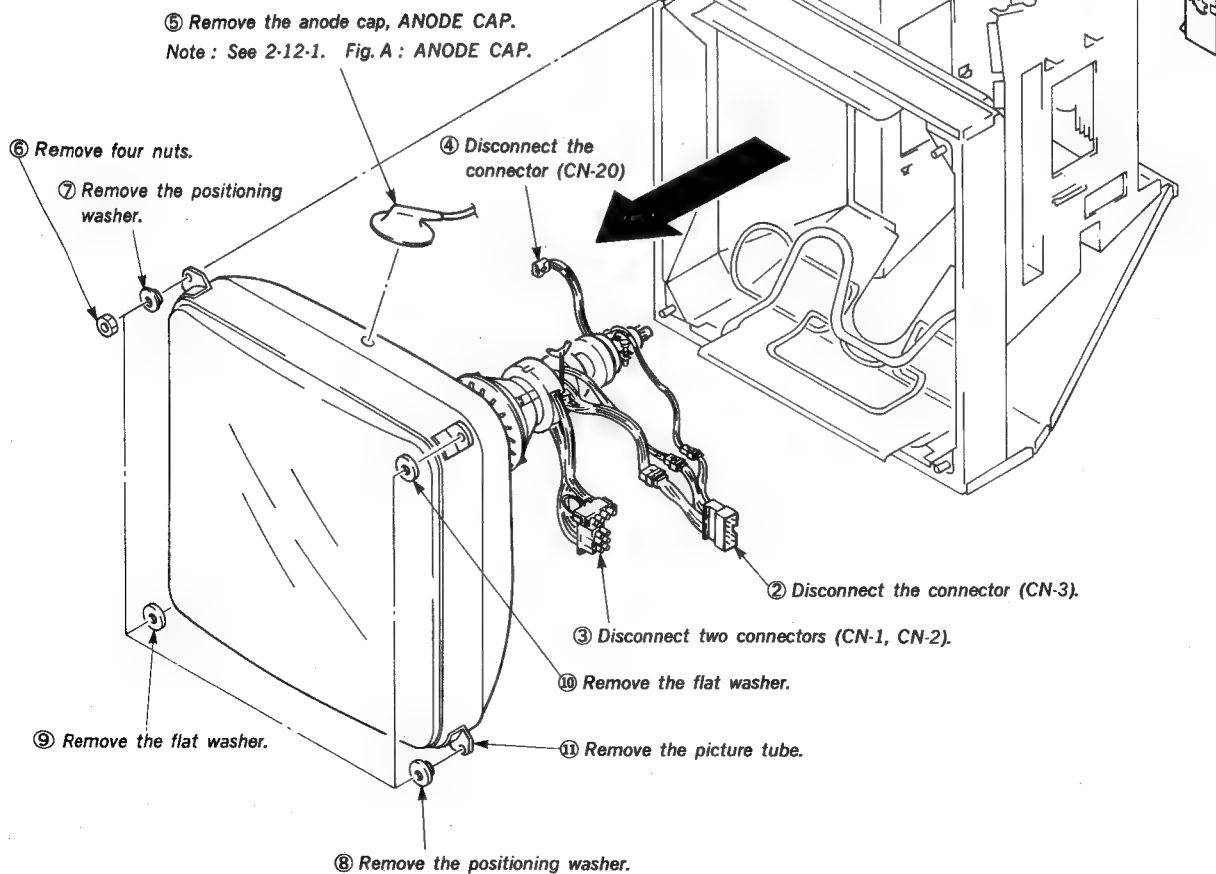
2-12-1. Fig. A : ANODE CAP

Note : When disconnecting the anode cap, be sure to turn the power switch off and wait for at least one minute. The high voltage drops to 30 volts in about 45 seconds after turning off the power.



2-13. REMOVAL OF PICTURE TUBE

① Remove the picture tube from the C board.
Note : See 2-8-2. Removal of ABC block and A, B, C, U COMPL ⑤—⑨.



SECTION 3 THEORY OF CIRCUIT

3-1. G BOARD

Transformer names are abbreviated as follows in the text and diagrams. Also refer to the power block diagram (Fig. 7).

PIT : Power Isolation Transformer

PRT : Power Regulator Transformer

POT : Power Output Transformer

HT : Heater Transformer

CDT : Converter Drive Transformer

3-1-1. Principles of Control Operation

Fig. 1 shows the basic circuit structure. By driving Q1 and Q2 regulator out transistors at such a voltage that they are alternately turned on and off, a rectangular waveform voltage (Fig. 2) is obtained between A and B outputs. The connected C series capacitor and series resonance circuit composed of PIT and PRT generates a voltage waveform between B and C as shown in Fig. 3. If PRT inductance is changed, resonance circuit impedance will also vary, affecting the pulse amplitude between B and C outputs. The output can be stabilized by changing PRT inductance according to load variations.

There are three independent resonance circuits connected between A and B.

One : $\pm 15V$, $\pm 22V$, $\pm 45V$ and $+6.3V$ outputs

Two : $+145V$ output

Three : $+75V$, $-70V$ and $+170V$ outputs

Since these resonance circuits are designed for little mutual interference, abnormal loads can be easily detected. The G board is composed of a current resonance type DC/DC converter having 11 different output voltages.

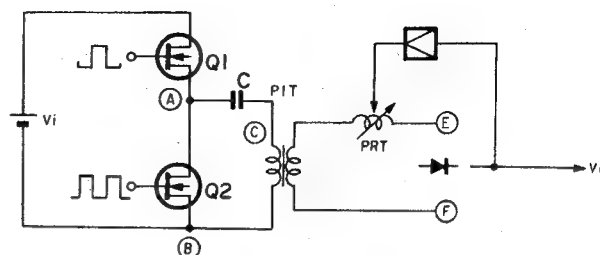


Fig. 1.



Fig. 2.

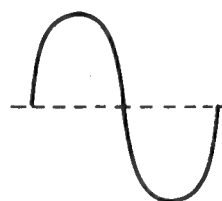


Fig. 3.

3-1-4. Control Circuit

The control circuit is shown in Figure 5.

The PRT (Power Regulation Transformer) is a saturable reactor with control winding. The inductance of the PRT is reduced when a control current flows in the control winding, and therefore the output voltage can be controlled. When the load current increases, the control current also increases and the inductance L of PRT is reduced. Therefore the output is maintained at a constant voltage. As shown in Figure 5, output voltage V_O is input to the error amplifier TL431 after being divided by the two resistors. The cathode of TL431 is connected with the base of transistor QA and the collector current is supplied to the control winding as the fluctuation of output voltage. Transistor QB consists of the over current protector. When the load current is increased, the emitter electric potential of QB is reduced, it conducts and QA is cut off. In this way the power supply is controlled. The transistor QC is for soft starting, and builds up the output voltage with the time constant determined by the resistor and capacitor. The POT (Power Output Transformer) and the HT (heater transformer) are connected as shown in Figure 6, and the stabilized output voltage of the PRT is supplied from the secondary of the transformer.

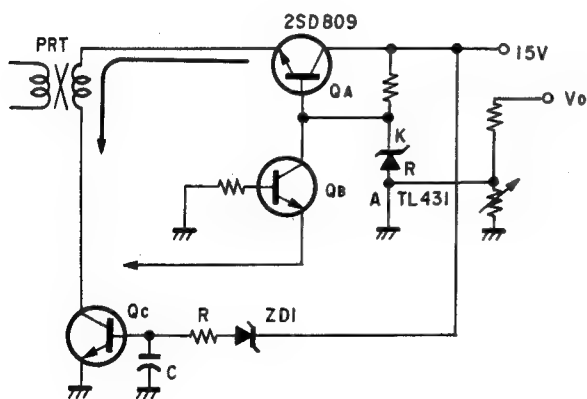


Fig. 5. Control Circuit

3-1-5. Over Voltage Detection Circuit

The output voltages, +15V, +22V, +45V, +75V, +145V and +170V are detected by the detecting resistors, and are compared with reference voltages at the comparator IC203 on the GB Board and IC303 on the GC Board respectively. The resulting outputs are gated as an OR Function and supplied to the gate of GA D101. This is normally low, and becomes high during OVP operation.

3-1-6. Failure Indicators of Output Voltages: T Board

All outputs except +5V digital system power and 12V standby voltage output are shut down when there is a $\pm 15V$ overload. If this occurs, the red LEDs on the T Board which are shown as **15V**, **22V**, **45V**, **75V**, **170V** will be illuminated.

When there is an overload of +22V, -22V, +45V or -45V, all four of these outputs are shutdown and the red LEDs **22V** and **45V** will be illuminated. When there is a +75V or +170V overload, the +75V, -70V and +170V outputs are shut down, and the red LEDs **75V** and **170V** will be illuminated.

In the case that these output voltages become abnormal, the over voltage protection circuit is triggered, and all outputs are shutdown with the exception of +5V and 12V standby voltage. At this time, the red **OVP** LED will be illuminated. When these voltage outputs are shutdown or the over voltage protection circuit is operated, the red LED shown as **G** will also light up.

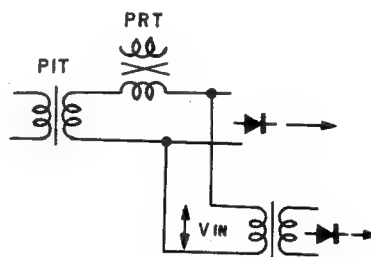


Fig. 6.

Block Diagram

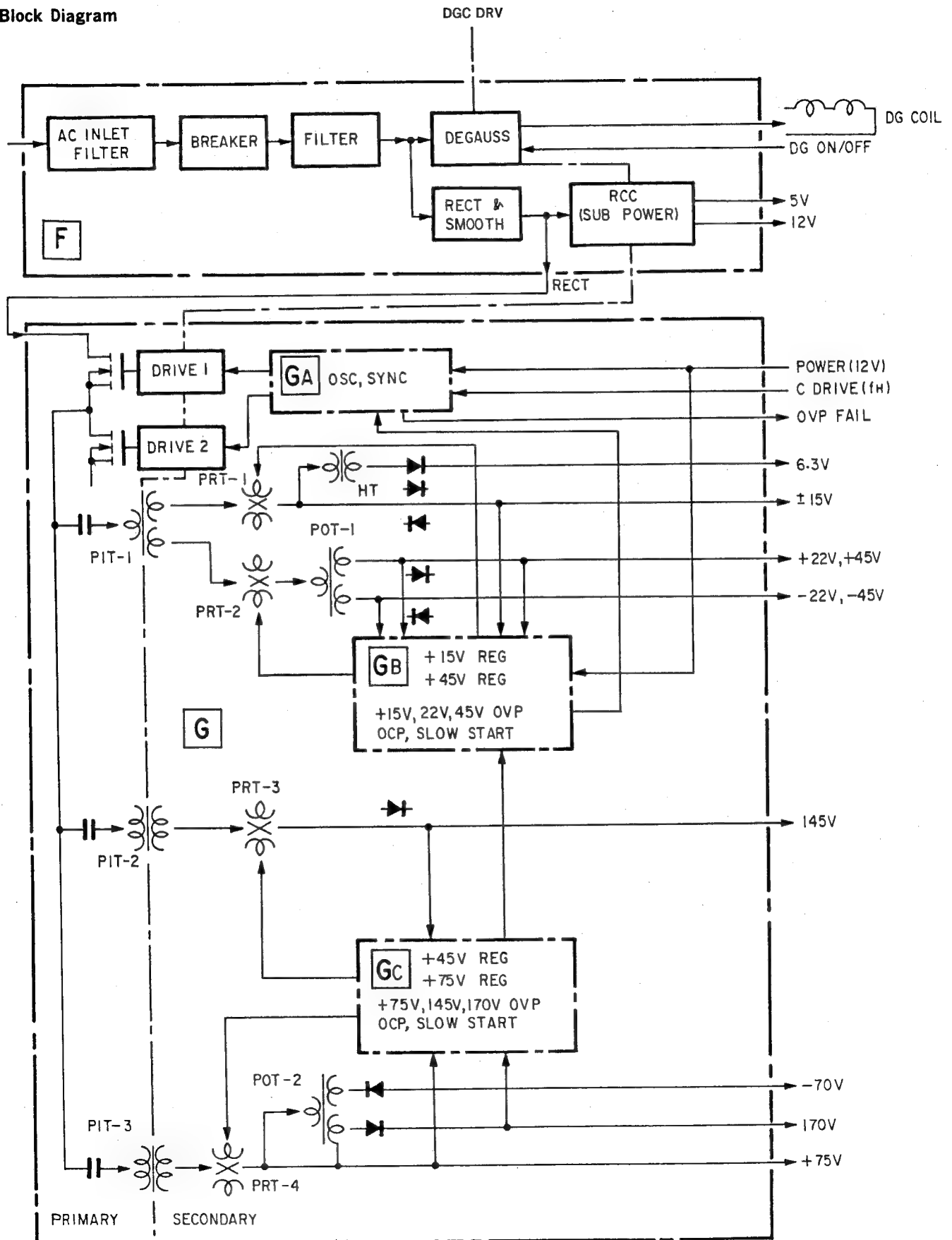


Fig. 7.

3-2. (1) F Board (2801C, 2802C)

The F board mainly consists of the filter section, rectification circuit, degauss circuit for CRT degaussing operation and the auxiliary power supply called RCC (Ringing Choke Converter). AC voltage, which is supplied through the AC inlet, is input to the filter section. The filter section has the line filter transformers LFT1 (T1) and LFT2 (T2) which are connected in parallel. After passing through the filter section, the AC voltage is converted into DC voltage at the voltage doubler rectification circuit and is input to the power supply circuit on the G Board.

(2) F Board (2801C2, 2802C2)

The F board mainly consists of the filter section, rectification circuit, degauss circuit for CRT degaussing operation and the auxiliary power supply called RCC (Ringing Choke Converter). AC voltage, which is supplied through the AC inlet, is input to the filter section. The filter section has the line filter transformers LFT1 (T1) and LFT2 (T2) which are connected in series. After passing through the filter section, the AC voltage is converted into DC voltage at the bridge rectification circuit and is input to the power supply circuit on the G Board.

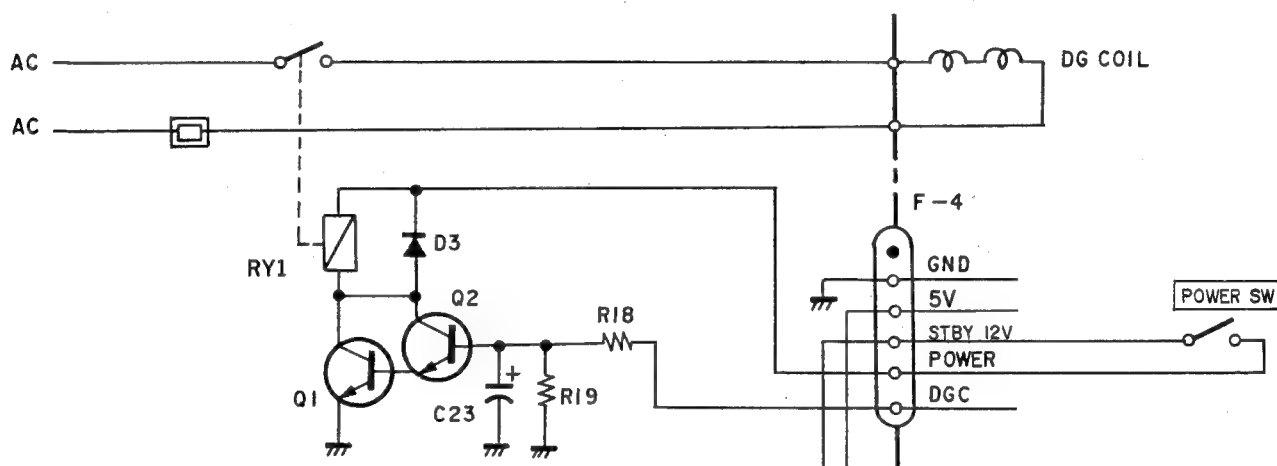


Fig. 8.

3-2-1. Degauss Circuit

The high/low signal is supplied to the DGC input of the F-4 connector from the M board. A high signal switches on Q1, Q2 and RY1, thus initiating the degaussing operation.

3-2-2. RCC (Ringing Choke Converter) Circuit

This is an auxiliary power supply for providing 12V standby voltage and 5V digital system power. IC1 (MA1050) is a HIC for RCC with a built-in current limiter.

QA is a converter output transistor. QB, on the other hand, is a control/current-limit transistor that controls pulse width according to output voltage. If voltage is detected by the detecting coil wound around T4, QB will turn on to limit the QA collector current, thereby providing overload protection for the power supply.

If the 12V line rises, the 15 volt zener diode D4 will turn on, the thyristor D5 will conduct, and the 12V line will become grounded. To reset, turn the main SW (breaker) off for a few minutes, and then turn it back on.

The RCC will continue to operate while the main breaker is on (even if the POWER SW on the front panel J Board is switched off). When the front panel SW is switched off, the voltage of pin ② of IC4 (SI3050C) will become low and the 5V output will shut off.

Note: The RECT section of the F and G Boards will be powered at approximately 300V as long as the main breaker is on.

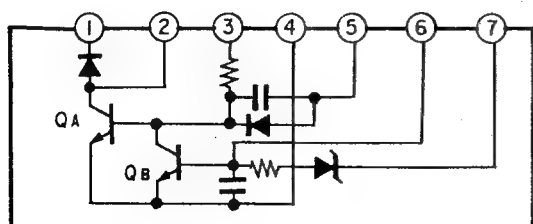


Fig. 9.

3-3. P AND K BOARDS

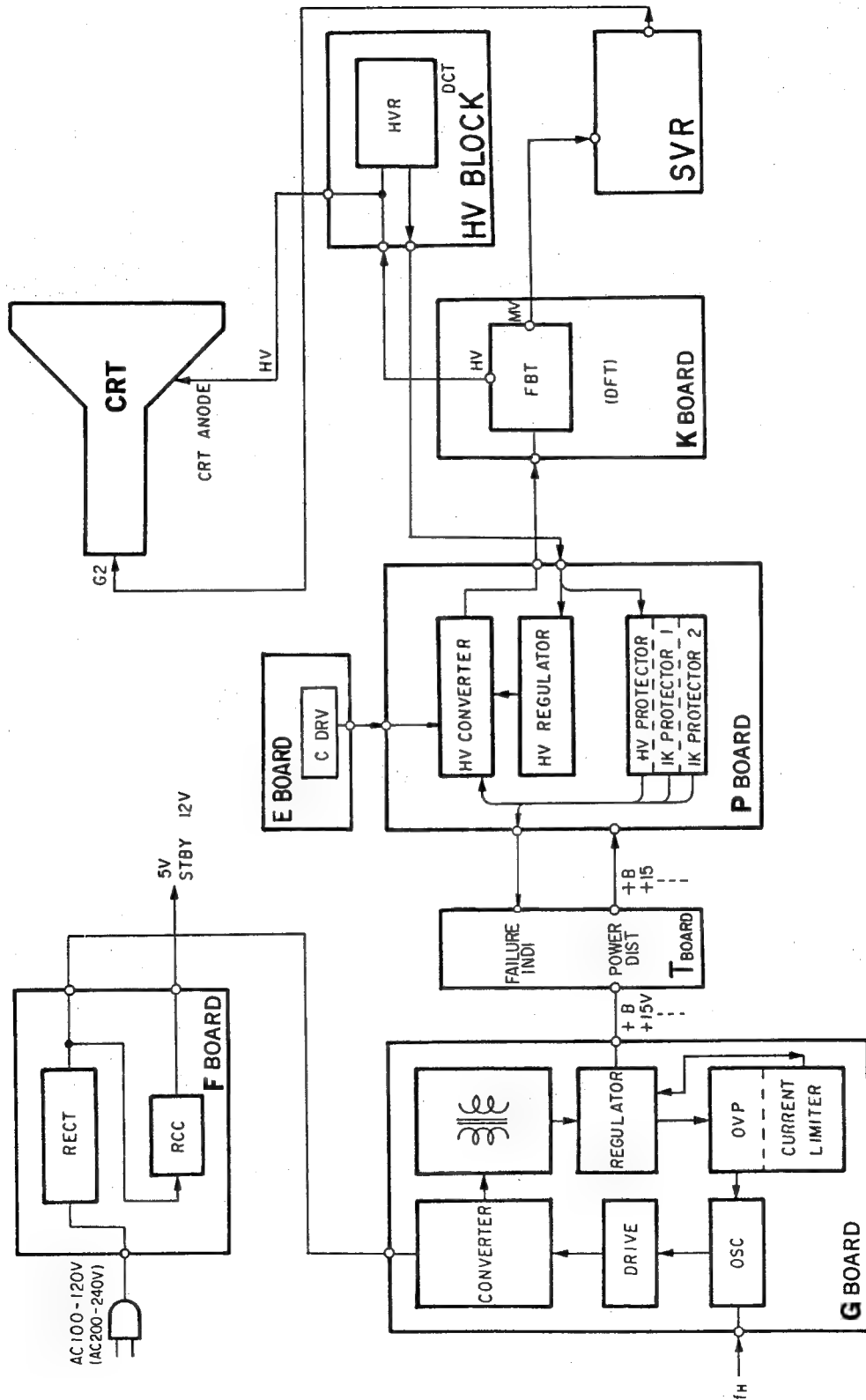


Fig. 10. Power Supply High Voltage System Block Diagram

3-3-1. HV Regulator Circuit

The HV regulator reference voltage is generated by IC2. V_Z is input to the \ominus pin of IC3 (1/2) through a divider consisting of R25, R26, R27, RV1 and R28. High voltage is divided in the HV BLOCK and the resultant voltage (HVR) is supplied to the \oplus pin of IC3 (1/2). IC3 (1/2) compares HVR and VHV, and outputs the reference to the \oplus pin of IC3 (2/2). The square wave output from pin ⑦ of IC1 (monostable multivibrator) is inverted by Q7, and integrated by C18 to form a sawtooth wave. IC3 (2/2) is a PWM that compares the sawtooth voltage with the input voltage at its \oplus pin, thereby

changing the pulse width output from IC3 (2/2). If the HVR voltage drops, the pulse width becomes narrower and the Q2 turn-on period becomes shorter. Thus, the Q1 on period becomes longer and the peak current to the HRC (HV Regulator Converter) increases.

This causes the FBT pulse voltage at Q5 (HV converter) to increase which provides HV stabilization. If the high voltage increases, the opposite operation occurs stabilizing the high voltage.

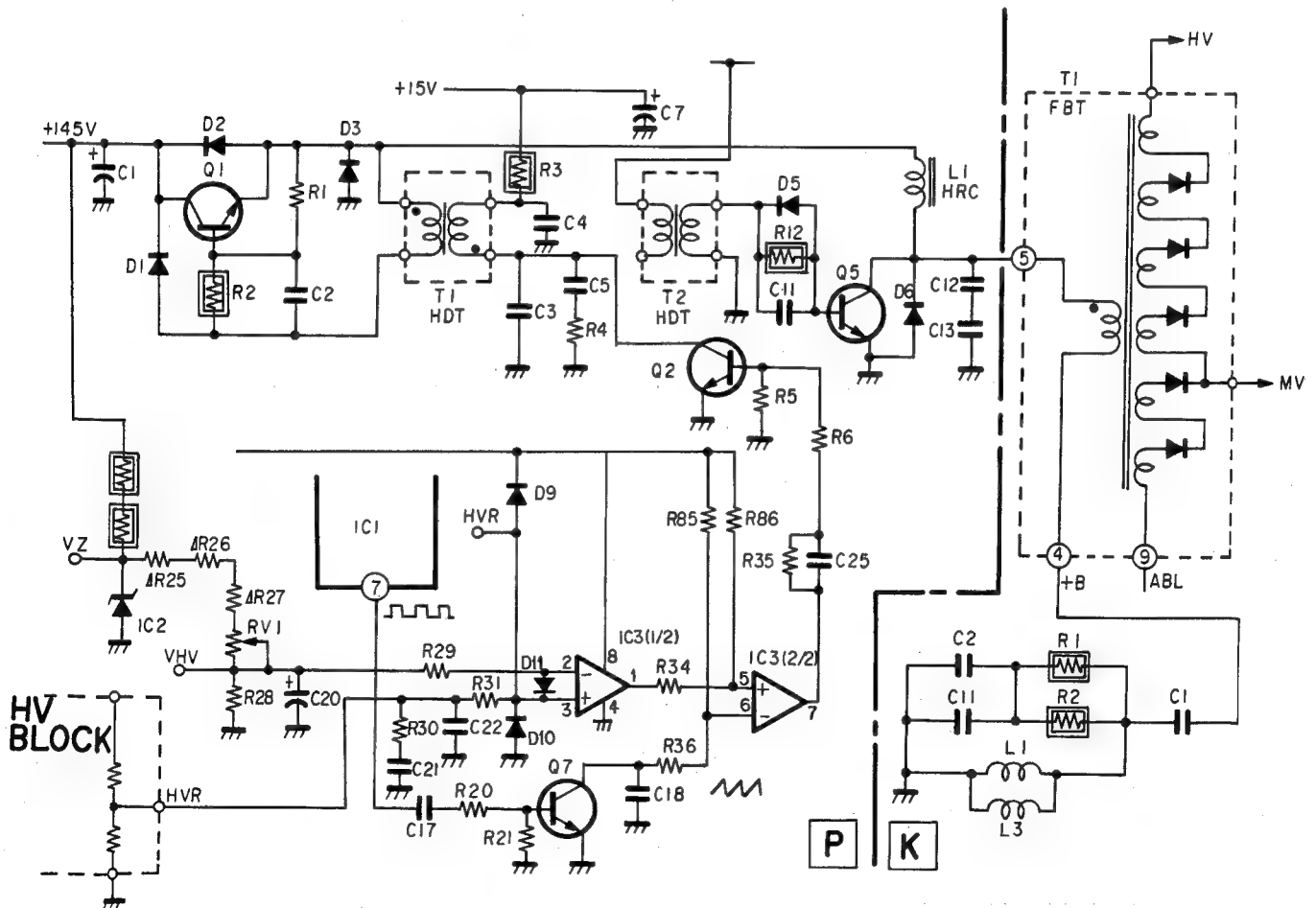


Fig. 11.

3-3-2. HV Protection Circuit

The reference voltage for the HV protector is generated by IC4. The operating voltage of the HV protection circuit is determined by R57 through R61. Normally, the VPR voltage at the \ominus pin of IC5 is higher than the PRT voltage at the \oplus pin of IC5. The output level of pin ⑦ is low.

If the HV rises beyond normal levels, the voltage at the PRT terminal will also rise. When the PRT voltage exceeds the VPR voltage, the output of IC5 will become high, D17 will turn on, Q6 will switch off, and the power supply (+15V) for the HV converter drive circuit will turn off, shutting down high voltage operation. At this time, the HV failure LED (D16) will also light up.

The anode terminal of D17 is connected to pin ⑤ of IC1 through D23. IC1 (monostable multivibrator) generates the input pulses for the Q7 sawtooth wave form generator. When D17 is switched on as a result of the HV's rising, the C.DRV pulse supplied to IC1 becomes disabled. The HV regulator circuit comparison sawtooth wave disappears as the IC1 pin ⑦ pulse is no longer output. Thus, the shutting down of Q7 causes IC3 (PWM) to cease operation which prevents HV regulation.

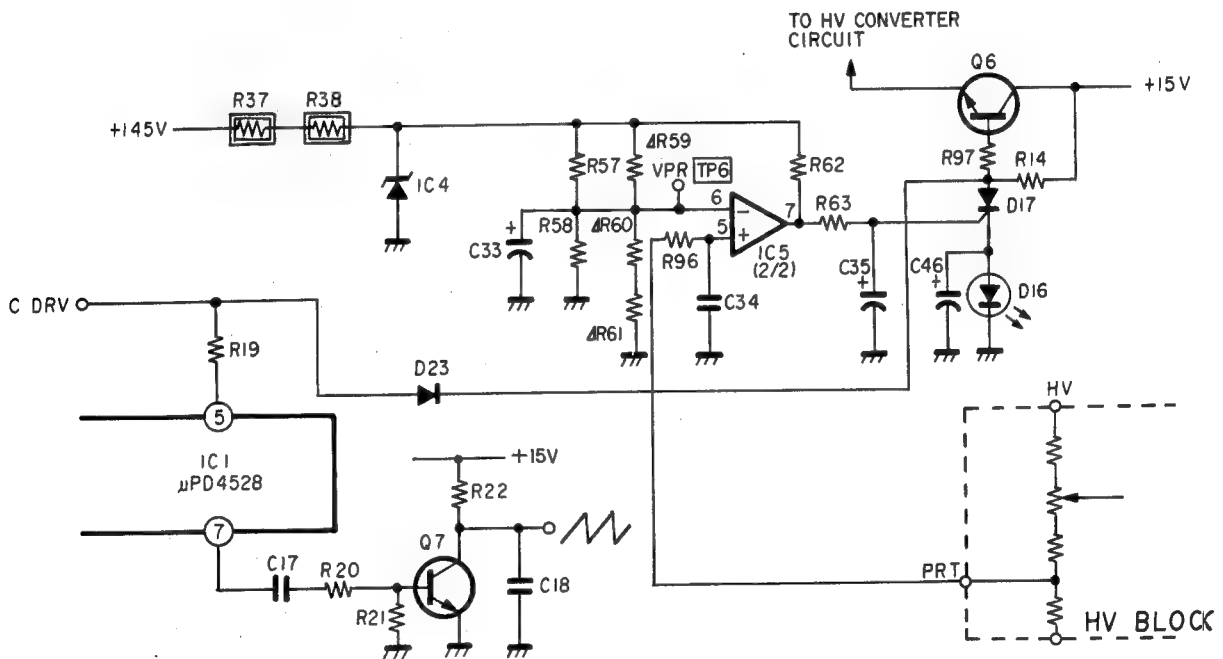


Fig. 12.

3-3-3. Beam Current Protector

If the CRT anode current increases beyond a predetermined value, the beam protector circuits inhibit high voltage operation. This monitor incorporates two individual beam protectors to provide double current protection.

The reference voltage for Beam Protector 1 is determined by IC4, and the reference voltage for Beam Protector 2 by IC2. The operating voltage for Beam Protection circuits 1 and 2 is determined by $\Delta R41$ and $\Delta R50$ respectively.

<Description of Beam Protector 1 Operation>

Normally, the level at pin ② of the IC5 (1/2) comparator is higher than that of pin ③, and the IC output is low.

The voltage at R66 becomes more negative as the anode current increases. This causes the voltage at pin ② of IC5 to decrease. When the voltage at pin ② becomes less than that of pin ③, the IC5 output increases, D12 is switched on, and Q6 turns off the power (+15V) to the HV converter circuit. This causes a high voltage shut down as explained in 3-3-2. HV Protection Circuit.

At this time, the K1 failure LED (D13) will light up. The operation of the backup circuit (Beam Protector 2) is the same as above.

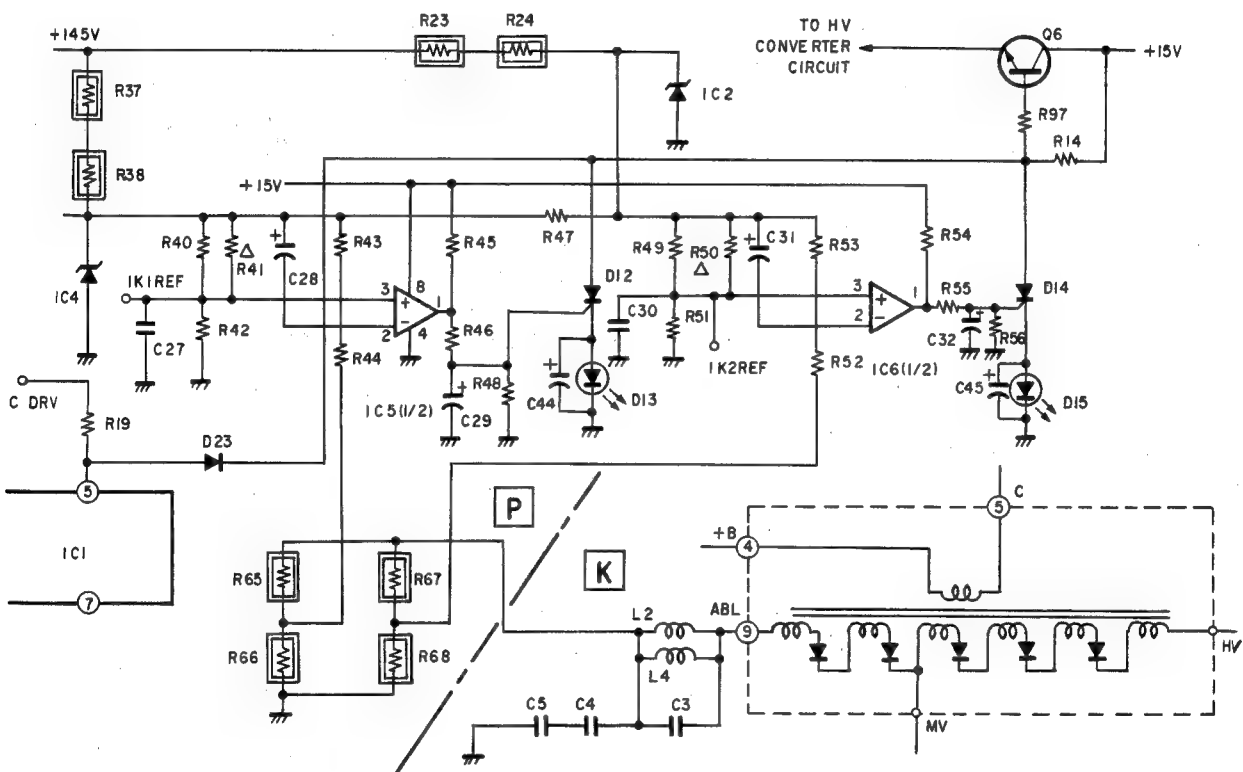


Fig. 13.

3-4. T, H, L, J1, J2 AND J3 BOARDS

The functions of the T board include power supply distribution, failure indication, and failure data transfer. The output voltages from the G board are distributed to the various boards via the T board. The failure signals from various boards are input to the T board.

3-4-1. Description of Indicators

(Red LED is illuminated when there is an abnormality, and green LED illuminated when normal)

[OVP]: (Over Voltage Protector):

.....When the 170V, 145V, 75V, 45V, 22V, or 15V voltage of the G board becomes too high due to a malfunction, the protector is activated and the LEDs are illuminated:

[170V]: Illuminated when the +170V line fails.

[145V]: Illuminated when the +145V line fails.

[75V]: Illuminated when the +75V line fails.

[45V]: Illuminated when the +45V line fails.

[22V]: Illuminated when the +22V line fails.

[15V]: Illuminated when the +15V line fails.

[A]: Illuminated when there is an abnormality in the A or B boards.

[E]: Illuminated when there is an abnormality in H out or V out of the E board.

[G]: Illuminated when the G board output voltage decreases during OVP operation.

[M]: Illuminated when there is an abnormality in the M1 or M2 boards.

[P]: Illuminated when the protector circuit on the P board is activated.

[R]: Illuminated when there is an abnormality in the DCT-1, DCT-2, DCT-3, AQP, DQP or DFX circuits of the R board.

[S]: Illuminated when there is an abnormality in the CY-1 or CY-2 circuits of the S board.

[FAN]: Illuminated when one of the three fans fails.

[STBY 12V]: Illuminated when the backup 12V power supply is operating properly.

[5V]: Illuminated when the 5V power supply is operating properly.

The A, E, G, M, P, R, S, and FAN failure signals are input to pass through an OR gate and the result is transmitted to the L board which will indicate a system failure.

These failure signals are converted to serial data by IC3 and transmitted to the M board.

3-4-2. H Board

Equipped with a 15-pin D-sub connector for connection to an external controller for service adjustments, and with an 8-pin DIN connector for connection to an external landing sensor.

3-4-3. L Board

Equipped with power and failure indicators. Power status and failure status are indicated with green and red LEDs respectively.

3-4-4. J1 Board

Equipped with a power SW.

3-4-5. J2 Board

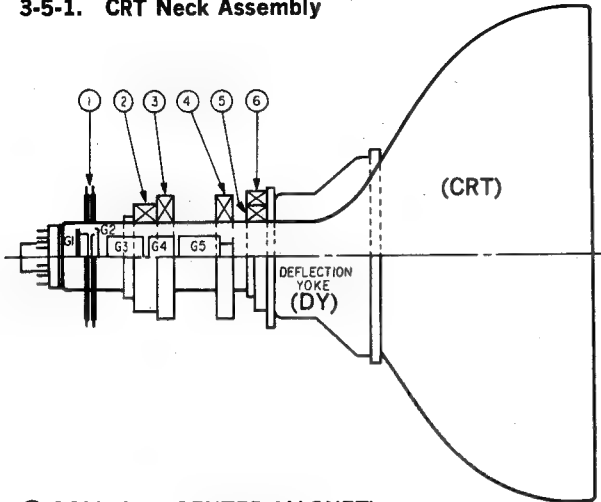
Equipped with contrast control.

3-4-6. J3 Board

Equipped with H.STAT, V.STAT, V.CENT and BRIGHTNESS controls, and a manual degauss switch.

3-5. CRT

3-5-1. CRT Neck Assembly



- ① GCM (GUN CENTER MAGNET)
- ② NTC (NECK TWIST COIL)
- ③ DQP (DOUBLE QUADRUPOLE COIL)
- ④ AVMC (ASYMMETRIC VERTICAL MISCONVERGENCE COIL)
- ⑤ CY (CONVERGENCE YOKE)
- ⑥ PC (PURITY COIL)

Fig. 14. CRT Neck Assembly

The CRT neck assembly is shown in Fig. 14. As shown in the diagram above, the neck assembly uses six types of coils and magnets, excluding the deflection yoke. The following is a description of the functions of the neck assembly.

- ① GCMMagnet for correction of gun centering.
- ② NTCCoil used mainly for correction of static misconvergence in the vertical direction caused by twisting of the electron gun.
- ③ DQPDouble Quadrupole to correct beam spot shape.
- ④ AVMCCoil for correction of an even vertical misconvergence.
- ⑤ CYCoil for correction of dynamic vertical misconvergence.
- ⑥ Purity CoilCoil for correction of mislanding generated by effects of vertical ground magnetism or lateral shifting of the electron gun center from the CRT axis.

• Horizontal Convergence Correction Method

This unit utilizes a static electric convergence system for correction of horizontal misconvergence. The DY coil's magnetic distribution is almost even in order to prevent distortion of the beam spot. Thus, while the focus characteristics are superb, dynamic misconvergence in the horizontal direction occurs as shown in Fig.15.

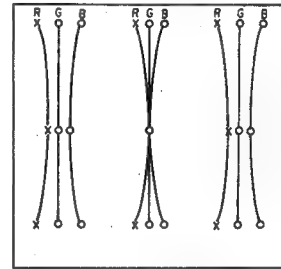


Fig. 15. Dynamic Misconvergence

As shown in Fig. 16, when DC voltage is applied to the CV electrode for convergence at the center of the screen, the optimum position on the sphere is indicated by ④. However, as the front panel indicated by ③ is nearly flat, over-convergence occurs at both sides of the screen. Thus, dynamic misconvergence occurs as shown below.

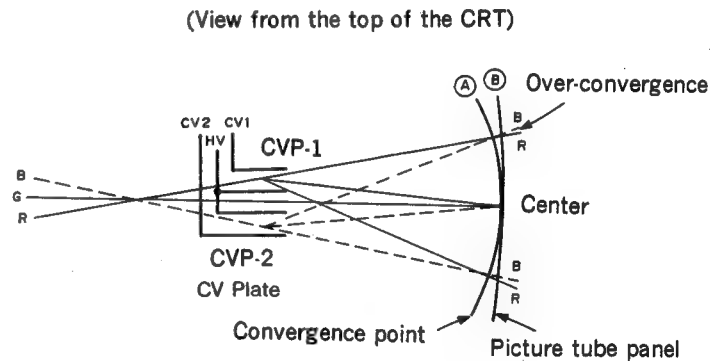


Fig. 16. Convergence Principles

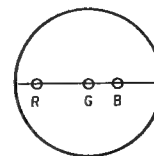


Fig. 17. Assymetrical Components of Horizontal Convergence

When asymmetrical horizontal misconvergence occurs as shown above in Fig. 17, a BMC magnet is usually used to correct it. However, in the case of the DDM, such use would invite deterioration of the focus characteristics as it will distort the spot shape.

The convergence plate in this unit is divided into CVP-1 and CVP-2 for asymmetrical correction without deterioration of the focus characteristics by applying independent correction voltages to the respective CV electrodes.

The CV plate construction is shown in Fig. 18. The convergence voltage CV1 for correction of red misconvergence is applied to Ⓐ (CVP-1) and the correction voltage CV2 for the blue misconvergence is applied to electrode Ⓒ (CVP-2).

Since high voltage (HV=30.0 kV) is applied to electrode Ⓑ, the red beam is bent by the electrical field created by CV1 and HV, and the blue beam is bent in the same manner by the electrical field created by CV2 and HV. This provides convergence correction.

(CV1, CV2 are approx. 29.1 kV)

Convergence Electrode

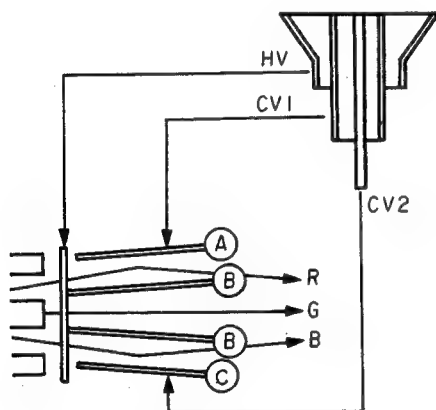


Fig. 18. Structure of CV Plate

3-6. E BOARD

The E board consists of horizontal and vertical oscillation, drive, and output circuits.

3-6-1. Horizontal Oscillation Circuit

The H.sync signal (negative TTL) is sent to the E board from the B board through the M board. This signal then passes through the phase shifter in IC9 before being input to the AFC circuit.

The amount of phase shifting applied by the phase shifter is controlled by the Y.SKEW signal from the M board. The Y.SKEW signal contains a DC component for H. phase, a parabolic component for Y.BOW, and a sawtooth component for the Y.SKEW adjustment.

The horizontal pulse created by the horizontal output circuit is input to pin ④ of IC9. The resulting sawtooth wave is sent

to the AFC circuit. The amount of phase shift of the sync signal and deflection circuit is obtained from pin ⑦ as DC voltage. This is fed back to pin ⑧, and the horizontal oscillation frequency is controlled by altering the DC voltage to correct the frequency shift.

The Y.SKEW signal is applied to pin ⑦, and corrects the bend and tilt of the vertical center line.

RV3 is also connected to pin ⑧ to control the horizontal oscillation frequency by altering the DC voltage at pin ⑧.

This signal is output to pin ⑫ as a 126.8 kHz horizontal oscillation pulse, and is sent to the horizontal drive circuit.

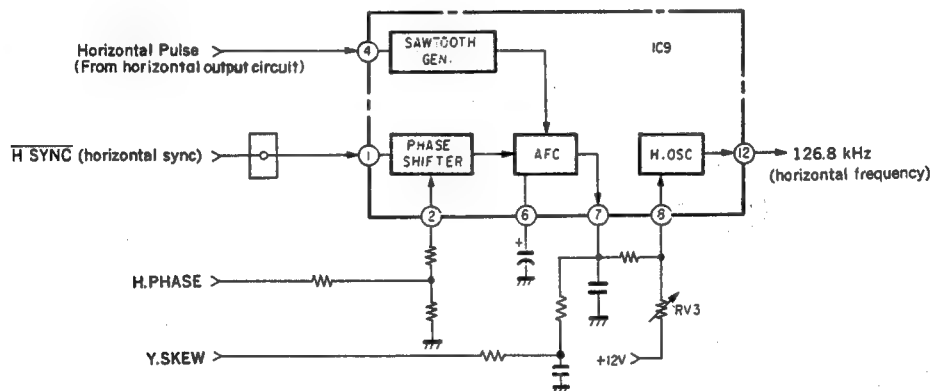


Fig. 19. Horizontal Oscillation Circuit

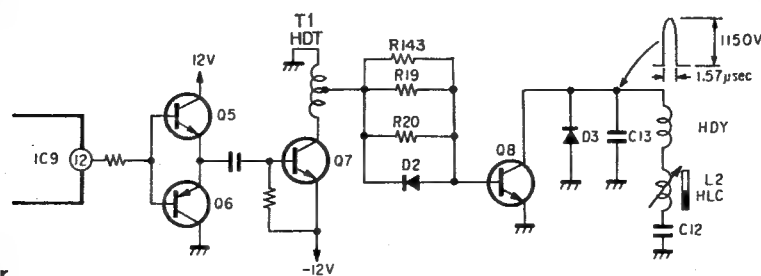
3-6-2. Horizontal Drive Circuit

The pre-drive output pulse from pin ⑫ of IC9 is input to the Q7 horizontal drive circuit through the Q5 and Q6 buffer circuit.

A choke-type HDT (horizontal drive transformer) is connected to the drive circuit, and the emitter of Q7 is connected to -12V. (Fig. 20)

As the horizontal frequency in this unit is high, it is necessary to shorten the storage time caused by the drive circuit. The

basic operation is as follows. When the horizontal output transistor Q8 is OFF, the horizontal drive transistor Q7 switches on and the negative base current is supplied by the -12V power supply through D2 to shorten the storage time and to store energy in the HDT. When Q7 is switched OFF, this energy is discharged as the Q8 drive current through R19, R20 and R143. This drives Q8 and allows the horizontal deflection current to flow.



D3: Damper diode

C13: Resonant capacitor

L2: Horizontal linearity correction coil

C12: S correction capacitor

Fig. 20. Horizontal Drive Circuit

3-6-3. Horizontal Pincushion Correction Circuit

The H DEF signal (parabolic voltage waveform) from the M board is used to correct the horizontal pincushion distortion. The H DEF signal modulates the voltage supplied to the horizontal output transistor by the circuit formed from the output transistor Q2 and the error amplifier IC1.

Q16 is a current limiter which operates when the load current rises to 1.3 amps. The collector is connected to pin ⑬ of IC9 through R132 and R133. When an overload condition turns on Q16, the voltage at IC9 pin ⑬ becomes high. This stops the operation of the horizontal oscillator, and the circuit is protected.

3-6-4. H. Center Adjustment Circuit (Fig. 21)

The H CENT circuit uses a DC voltage supplied from IC3 and sent to the horizontal deflection coil through L3 (HCC). This performs the H CENT adjustment. First, the sawtooth voltage used for comparison is generated by the HD trigger from the M board, and is then input to the \ominus pin of IC5 (1/2).

The pulse width is modulated by the control voltage (H CENT) from the M board which is input to the IC5 \oplus pin. The modulated pulse is transmitted by photocoupler IC2. IC3 uses the power supplies ④ and ⑤ shown below, which are created using T2, D4, and D5.

Operation amplifier IC3 supplies DC current to the horizontal deflection coil.

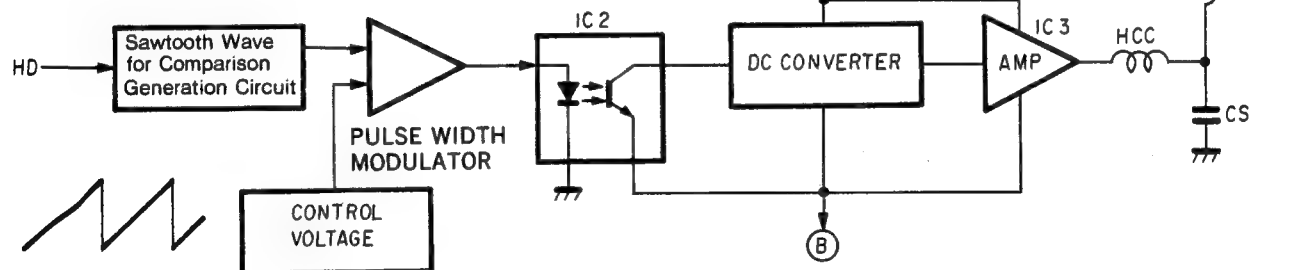


Fig. 21. H Center Control Circuit

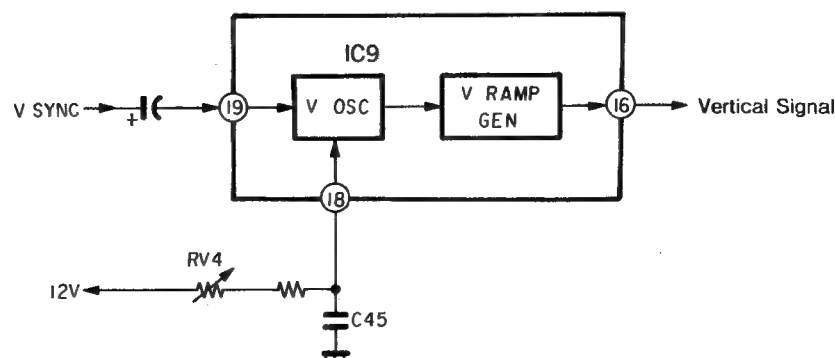


Fig. 22. Vertical Oscillation Circuit

3-6-5. Vertical Oscillation Circuit (Fig. 22)

The V.SYNC (negative polarity) signal created on the B board is input to pin ⑩ of IC9. The trigger-type vertical oscillation circuit operates by this V.SYNC signal. This signal is then output from pin ⑬ as the vertical drive pulse (VD). C45 and RV4 are connected to pin ⑭ for the oscillation time constants.

3-6-6. Vertical Deflection Output Circuit

The sawtooth wave for vertical deflection and the top and bottom pin correction wave are input to the Q18 differential amplifier. After being driven by Q19 this signal is amplified by the SEPP complementary amplifier formed by Q20, Q21, Q22, and Q23. This signal then drives the vertical deflection yoke coil.

The top and bottom pin correction transformer T3 (VPT) is connected to the output. T3 extracts only the top and bottom pin correction wave for the horizontal period, boosts it, and modulates the deflection yoke coil current with its secondary wiring. R115, R116, and C66 are connected to T3 in order to moderate the waveform of T3 and the waveform emitted by the two terminals of the vertical deflection yoke coil. This stabilizes the deflection in the upper portion of the screen. R117, R118, R137 and R138 connected to the bottom of the VPT secondary wiring detect the deflection yoke coil current, and supply negative feedback by R119 to improve the waveform. Thyristor D20 is switched ON by applying the vertical retrace to the gate by R112 and C64. This improves the linearity of the deflection current by high voltage driving during the retrace period.

3-6-7. Top-Bottom Pin Correction Wave Generator (EA Board)

The T/B AMP signal (vertical sawtooth wave) from the M board is input to IC1 on the EA board, and is output after being inverted by pin ①.

The falling edge of the HD pulse input to pin ③ of the EA board is used to create a phase shifting pulse by Q1 and Q2. The T/B phase input to the pin is inverted by IC1, enters the phase shift circuit formed by Q3 and Q4 and the phase of the T/B phase pulse is adjusted. This pulse is input to the Miller integrator formed by IC2 as a rise pulse. The Miller integrator creates a horizontal period sawtooth wave with the voltage determined by C6, R11, and pin ① of IC1.

Thus, the output wave is the horizontal sawtooth wave modulated by the vertical sawtooth wave as the signal at pin ① of IC1 is the vertical period sawtooth wave. This output is input to the vertical deflection circuit as the T & B correction wave.

3-7. R BOARD

3-7-1. Horizontal Convergence Correction Output Circuit

The DCT (Dynamic Convergence Transformer) is driven by the R board for correction of the convergence in the horizontal direction.

The A block diagram of the output circuit for horizontal convergence correction is shown in Fig. 23.

A pulse (HSP) is applied to the R board as the correction wave for clamping of the horizontal period correction signals H.AMP (R/B) and H.AMP (B) and for the vertical period correction signals Y.BOW (R/B) and Y.BOW (B) which are created by the M2 board.

H.AMP (R/B) is input to the drive circuit, formed by DCT1 and DCT2, through R1 and R3. Correction of red and blue misconvergence is performed simultaneously.

The H.AMP (R/B) signal is divided by R3 and R5, and is input to the differential amplification circuit formed by Q1 and Q2. At this time, $\overline{\text{HSP}}$ is inverted by Q19, passes through Q3, and is overlapped with the H.AMP (R/B) signal as the clamp pulse. This clamp pulse is modulated by the Y.BOW (B) signal and passes through the drive circuit formed by Q4. It is then output from the complementary SEPP circuit formed from the Q5 and Q6 darlington-pair to output transistors Q7 and Q8. After boosting by DCT1, the vertical envelope signal from DCT3 is clamped to the horizontal signal from DCT1 and supplied to the convergence plate (CVP-2). The H.AMP (B) signal is used for independent correction of blue misconvergence. This signal passes through R4, and is input to the DCT1 drive circuit. It is then added to the H.AMP (R/B) signal, and after insertion of the clamp pulse, is amplified and supplied to DCT1. Asymmetrical misconvergence in the

horizontal direction can be now corrected using the H/AMP (B) signal. Static asymmetrical misconvergence can be corrected by moving the blue beam independently since the height of the clamp pulse is modulated by the Y.BOW (B) signal. In the same manner, the H.AMP (R/B) signal is divided by R1 and R2, and is input to the differential amplifier circuit formed by Q9 and Q10. It then passes through the Q12 drive circuit after insertion of the clamp pulse by Q11. This signal is sent from the complementary SEPP circuit, formed from the Q13 and Q14 darlington-pair, to the output transistors Q15 and Q16 where it is input to DCT2. After boosting by DCT2, the vertical envelope signal from DCT1 is supplied to the convergence plate (CVP-1). This corrects red misconvergence.

The correction voltages for horizontal static misconvergence and Y.BOW dynamic misconvergence are supplied to DCT3. The correction voltages are obtained in the following manner.

Q19 inverts the HSP pulse and sends it through Q20 and Q21 where it is modulated by the Y.BOW (R/B) signal input through R92. The amplitude modulated pulse is sent to Q22, and then to the Q23 drive circuit. It is then output from the auxiliary complementary SEPP circuit formed by Q24, Q25, Q26, and Q27. After this waveform is boosted by DCT3, it is clamped by a diode and envelope detection is performed. Next, the parabolic wave for the vertical period is extracted and the signal is overlapped with the H.AMP correction voltage obtained by DCT1 and DCT2. The signal is then applied to the convergence plates (CVP-1 and CVP-2).

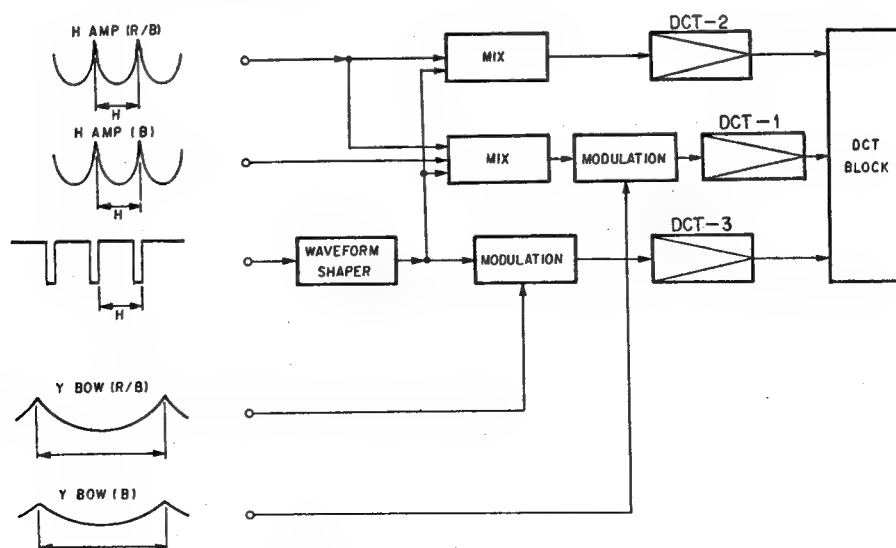


Fig. 23. Horizontal Convergence Output Circuit Block Diagram

3-7-2. Description of DCT Block Operation

The principles of DCT block operation are shown in Fig. 24. The DCT block contains detection resistors for HV regulator feedback, high voltage resistors for obtaining H.STAT voltage, DCT1, 2, and 3 for convergence correction, a clamping circuit, and a detection circuit.

The H.STAT voltage is approximately 29kV, which is obtained by dividing the high voltage (HV=30.0kV). This voltage can be varied by the H.STAT control, and correction of static misconvergence can be performed by changing the DC voltage applied to the convergence plates.

The H.STAT voltage (VA) is overlapped with the correction voltages obtained from DCT1, DCT2, and DCT3, and supplied to the convergence plates (CVP-1 and CVP-2). Correction of both static and dynamic misconvergence in the horizontal direction is possible even if it is asymmetrical. The pulse modulated by the parabolic voltage of the vertical period, shown in Fig. 24., is input to DCT3. As the CV voltage is extremely high, approximately 97% of HV, it is difficult to transmit the correction wave of the vertical period. The horizontal wave is clamped to the vertical period envelope at "VB" and the resulting waveform is shown in Fig. 25.

This is then supplied to the convergence plates.

In DCT3, this correction voltage is boosted four times. The pulse peaks are clamped by diode D3, and the vertical period correction wave is extracted by D4 and C1. The resulting waveform is shown in Fig. 25. As shown in this figure, static misconvergence correction is possible, as changing the overall height of the pulse changes the VB voltage DC level.

As shown in Fig. 24, the horizontal period correction wave with the clamp pulse inserted, is applied to DCT1 and DCT2. It is clamped by diodes D1 and D2 after being amplified approximately 100%, and is overlapped on the VB voltage. CV1 and CV2 are supplied to convergence plates CVP-1 and CVP-2 respectively. CVP-1 is a convergence electrode for correction of blue misconvergence, and CVP-2 is a convergence electrode for correction of red misconvergence. Thus, red and blue horizontal misconvergence can be corrected separately. The correction of blue misconvergence on the Y-axis is possible by changing the clamp pulse height, of the correction wave input to DCT1.

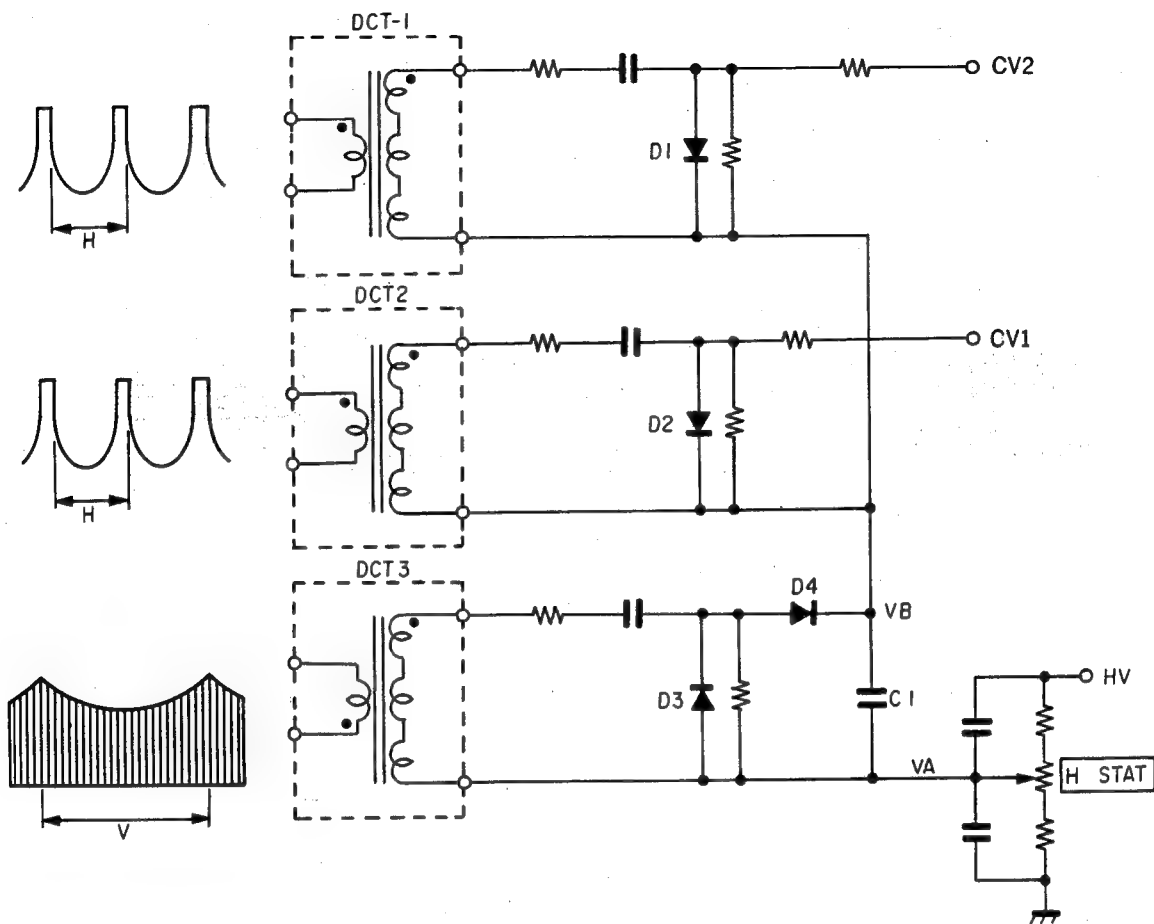


Fig. 24. DCT Block

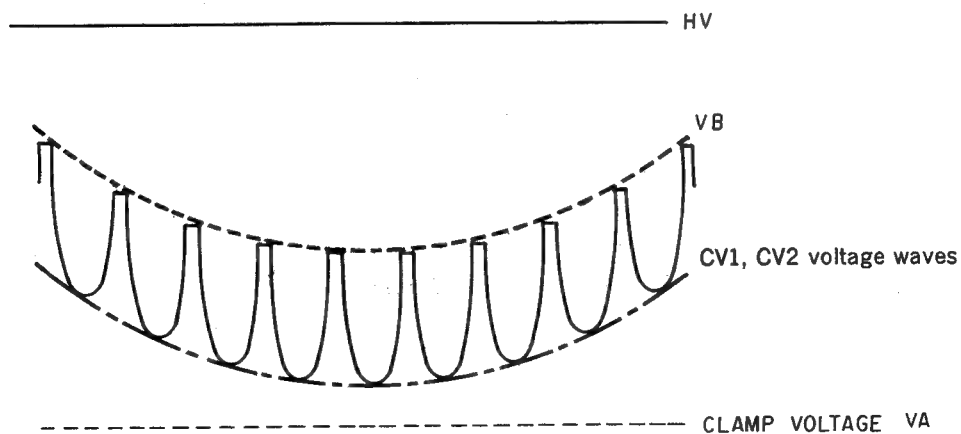


Fig. 25. CV1 and CV2 Voltage Waves

3-7-3. Dynamic Focus Circuit

The construction of the electron gun is shown in Fig. 26. In this gun, a GM electrode is mounted between the G2 and G3 electrodes to improve the focus of the side beams. Thus, there are pre-focus lenses before the main lens as shown in Fig. 27. This improves the focus characteristics of the side beams. A DC voltage of 10 kV is supplied to the GM electrode from the FBT. The voltage generated by the dynamic focus circuit is applied to the G4 electrode.

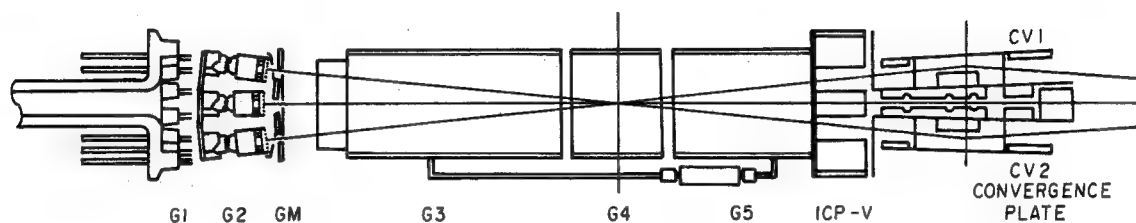


Fig. 26. Construction of Electron Gun

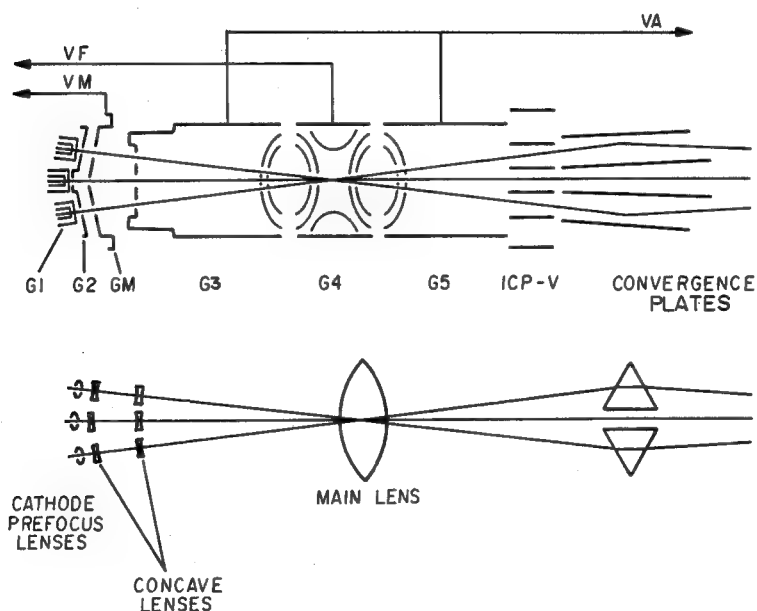


Fig. 27. Lens System

The dynamic focus circuit dynamically changes the focus voltage so that optimum focusing of the beams over the entire screen is obtained. With this monitor, adjustment of 17×17 points on the screen is possible to allow precise adjustment of the focus points.

After the X-axis correction voltage is amplified by the DFX circuit, it is amplified by the DFT.X (Dynamic Focus Transformer X).

The Y-axis correction voltage and static G4 voltage are created by the voltage resonance converter using DFT.Y. The block diagram of the dynamic focus circuit is shown in Fig. 28., and the waveform of the dynamic focus voltage is shown in Fig. 29.

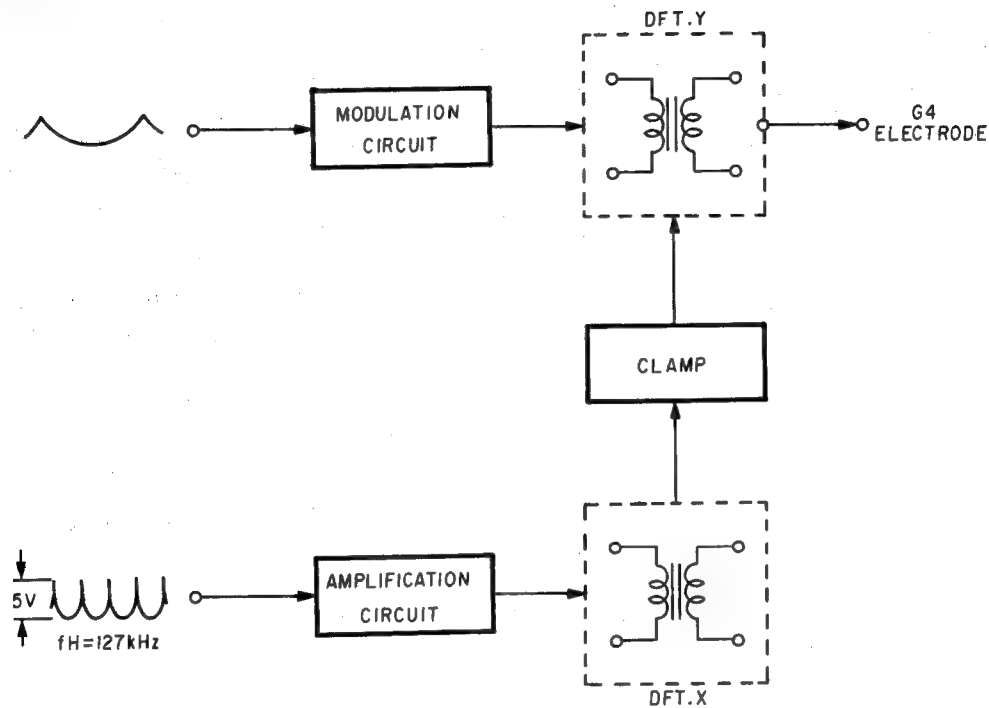


Fig. 28. Dynamic Focus Circuit

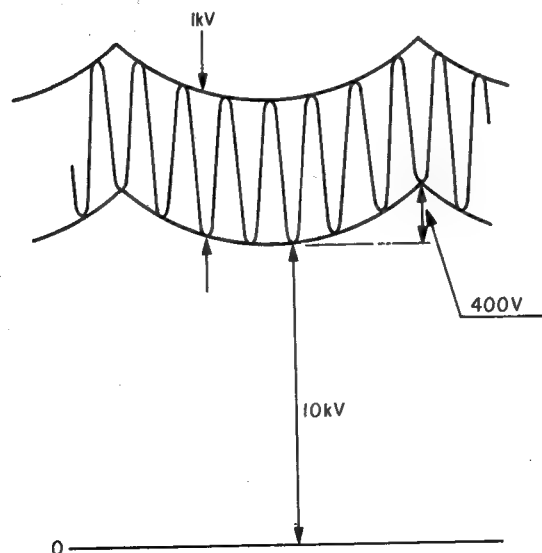


Fig. 29. Dynamic Focus Voltage

(1) DFX Circuit

The DFX correction waveform created by the M2 board is divided by R137 and R138 on the R board, and is input to the differential amplification circuit formed by Q35 and Q36. It then passes through the Q38 drive circuit, and on to the output stage. In the output stage, output transistors Q41 and Q42 are darlington-paired to Q39 and Q40, and form an auxiliary complementary SEPP circuit.

The correction waveform obtained from the output stage is amplified by T3 DFT.X on the K board and is clamped by a diode. It is then overlapped with the T2 DFT.Y correction voltage and supplied to G4.

(2) DFY Circuit

After the correction waveform created by the M2 board is divided by R113 and R114 on the R board, it is input to IC2 which forms the DFY modulation circuit. The DFY power supply modulation output transistor Q29 is driven by the output of IC3 (2/2), and the power supply modulation voltage is applied to T2 DFT.Y on the K board. The DFT.Y output transistor Q1, damper diode D2, and resonance capacitor C10 are connected to T2, and they form a voltage resonancetype converter. The C.DRV pulse created on the E board is applied to the gate of Q1, where it drives Q1. As a result, power supply modulated voltage of approximately 10 kV is generated at T2 DFT.Y. This voltage is divided by resistors, passes through the voltage follower circuit of IC2 (2/2), and is input to the sample and hold circuit formed by Q31 and C46. As shown in Fig. 28, the divided voltage is the horizontal period parabolic voltage overlapped with the vertical period parabolic wave. The HCP pulse is applied to the gate of Q31, and sampling is performed at the center of the horizontal period. The vertical period parabolic voltage is then extracted, and this passes through the IC3 (1/2) voltage follower circuit. Feedback is supplied by the modulation circuit of IC2 (1/2).

3-7-4. Double Quadrupole Correction Circuit

Because the front panel of the CRT is nearly flat, the shape of the spots will be elongated in the X and Y axis directions if double quadrupole correction is not performed.

In addition, there will be diagonal distortion at the corners, and when lines are displayed, their width will be different at various areas of the screen. For this reason, it is necessary to make the shape of the spots in the various areas as circular as possible. The double quadrupole correction circuit performs this function.

Fig. 31. shows the configuration of the coils used for double quadrupole correction, the directions of flux, and the direction of forces applied to the beams.

Coils are wound around magnet arms A and B, and force is

applied to the beam in the horizontal or vertical direction by the flux created by magnetic arm A. A diagonal force is applied to the beam by the flux created by arm B.

Fig. 32. Correction of the Beams.

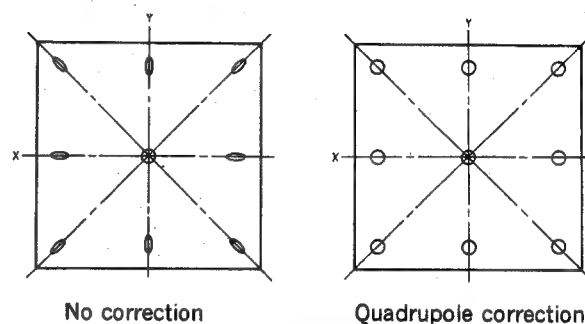


Fig. 30. Shape of Spots

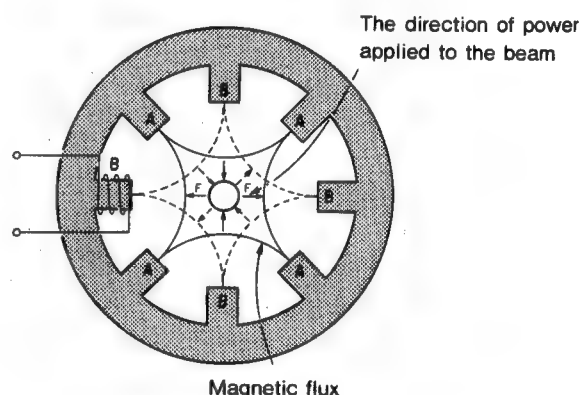


Fig. 31. Double Quadrupole Correction Coils
(Coils wound around the various magnet arms are omitted)

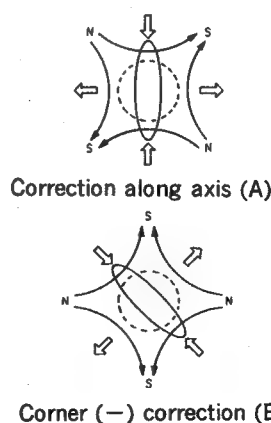


Fig. 32. Principles of Correction

(1) DQP Correction Circuit (Diagonal Correction)

The DQP (Diagonal Quadrupole) correction signal generated by the M2 board is divided by R164 and R165 on the R board, and is input to the differential amplification circuit formed by Q44 and Q45. The muting transistor Q43 is connected to the base of Q44. The base of Q44 is grounded until the DQP correction signal arrives. This protects the output stage transistor from overcurrent.

The amplified DQP signal passes through the drive circuit formed by Q58, and is output from the complementary SEPP circuit formed by output transistors Q48 and Q49. Q46 and Q47 are connected to output transistors Q48 and Q49 respectively in order to increase the current amplification rate. The current output from this SEPP circuit flows to the DQP coil wound around magnet arm B, and the shape of the diagonal beam is corrected until it is circular.

(2) AQP Correction Circuit (Axial Correction)

In the same manner as the DQP correction circuit, the AQP (Axis Quadrupole) correction signal created by the M2 board is divided by R183 and R184, and is input to the differential amplification circuit formed by Q51 and Q52. Q50 forms a muting circuit. The amplified AQP signal which passes through Q53 is output from the complementary SEPP circuit formed by Q54, Q55, Q56 and Q57. The correction current is then supplied to the AQP correction coil wound around magnet arm A. The shape of the spots elongated in the vertical or horizontal direction can now be corrected to become nearly circular.

3-8. S BOARD

3-8-1. NTC Correction Circuit

Correction of the static misconvergence in the vertical direction caused by twisting of the electron gun, etc., is performed by the NTC (Neck Twist Coil).

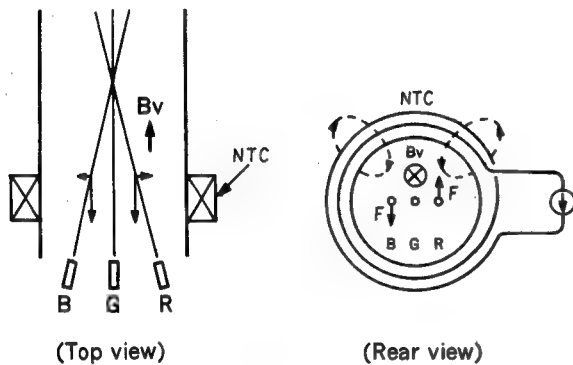


Fig. 33. Principles of NTC Correction

The principles of NTC correction are shown in Fig. 33.

The green beam, being parallel to the magnetic flux generated by the NTC, is not affected by this flux. Side beams (red and blue) however, deviate because they have an incidence angle greater than zero and their X-axis vectorial components receive the influence of the magnetic flux. Thus, by changing the NTC coil magnetic flux, it is possible to move the red and blue beams symmetrically with regard to the green beam, as shown in Fig. 33.

The NTC compensating signal is produced by the M2 board and delivered to the S board. Then it passes through R82 and it is input to the IC4 power operation amplifier. The output current of this amplifier drives the NTC to compensate for the symmetric component of vertical direction static misconvergence.

3-8-2. Asymmetric Vertical Misconvergence

Compensation Circuit (S Board, AVMC Coil).

Compensation of the asymmetric component of vertical static misconvergence is performed by the AVMC (Asymmetric Vertical Misconvergence) compensating coil.

Compensation of this asymmetrical component is usually performed with six magnets, but this causes spot shape distortion with the resulting adverse effect on focus characteristics. To prevent this, this monitor uses an electromagnetic coil for compensation.

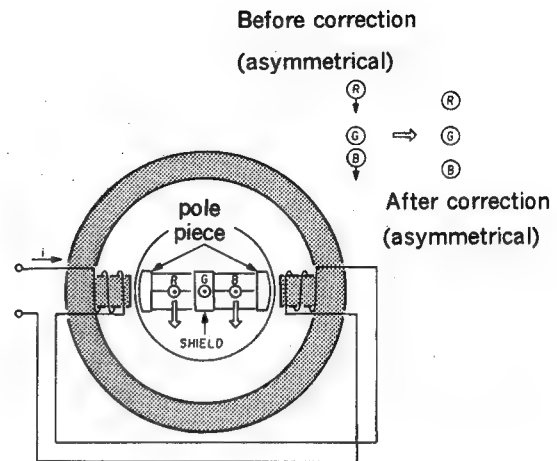


Fig. 34. AVMC Compensation Principle

As shown in Fig. 34, this electromagnetic coil has windings on the two-round-pole ring core legs, connected in series. It is equipped with a pole piece to provide a uniform horizontal magnetic field to the side beams between the electron gun G5 and the convergence plate. It also has shielding to prevent the center beam from being affected by this horizontal field. When current flows into the AVMC coil, the side beams receive a force in the vertical direction so that compensation can be carried out resulting in the red and blue beams being at the same distance from the green beam, as shown in Fig. 35. In this way the asymmetrical component of vertical direction static misconvergence can be compensated by supplying DC current to the AVMC coil. Compensation of the Y-axis asymmetrical component is also possible by applying the vertical period compensation current to the AVMC coil. The AVMC compensation circuit is located on the S board. The compensation signal generated at the M2 board is divided by R67 and R155, then delivered to the AVMC coil. This coil has the compensation current from the IC6 power operation amplifier applied to its neck for asymmetrical component compensation. After the red and blue beams are located at the same distance from the green beam, they can be aligned with the green beam by the NTC (Neck Twist Coil).

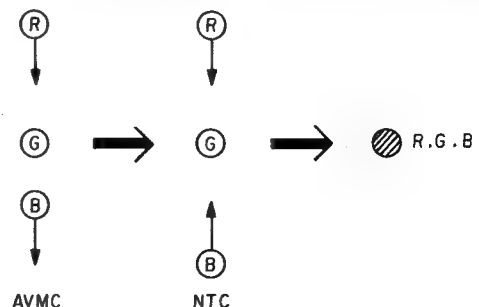


Fig. 35.

3-9. B BOARD

3-9-1. Functions of B Board

The B board consists of ① signal generator, ② SYNC input circuit, ③ D/A converter section (including G1 DC AMP), ④ blanking pulse generator and ⑤ clamp/reference pulse generator.

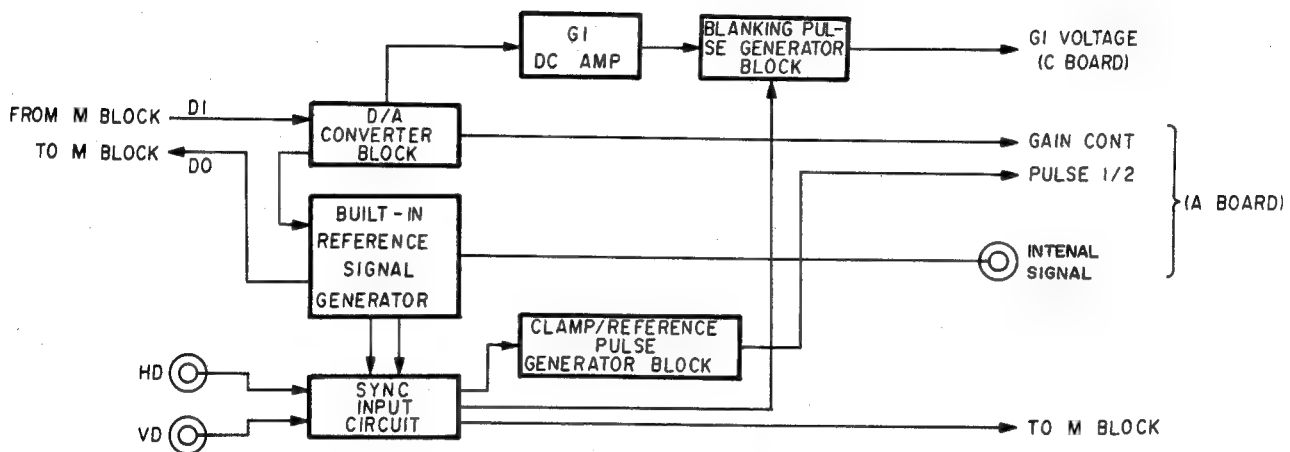


Fig. 38.

3-9-2. Interface with M block

The signals necessary for control of the video system are supplied from the M block as digital data. There is an 8-channel, 8-bit DAC in the D/A converter section. There are also 24-bit latches in the signal generator section. The signals supplied from the M board to these interface ICs are in the form of 36-bit serial data as shown in Fig. 39.

Data for checking data transfer is output from DO 36 clock cycles after being input to the shift register. The assignment of each bit is shown on the next page.

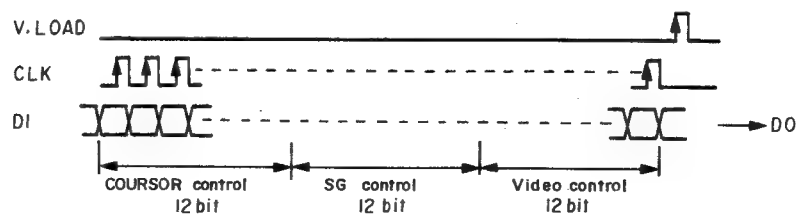


Fig. 39.

3-8-3. Vertical Direction Dynamic Misconvergence Compensation Circuit

There are three main types of vertical dynamic misconvergence: Corner cross vertical misconvergence (CCV), X-axis cross vertical misconvergence (XCV), and asymmetric components at the corners (corner VCR or Vertical Center Raster), as shown in Fig. 36. These are compensated for by the convergence yoke (CY) shown in Fig. 37.

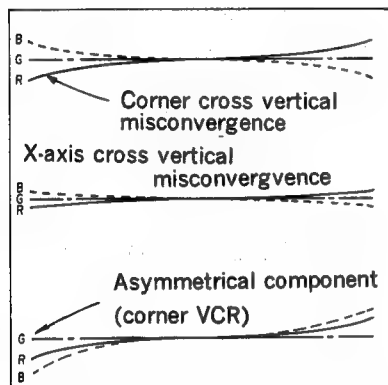


Fig. 36. Vertical Dynamic Misconvergence

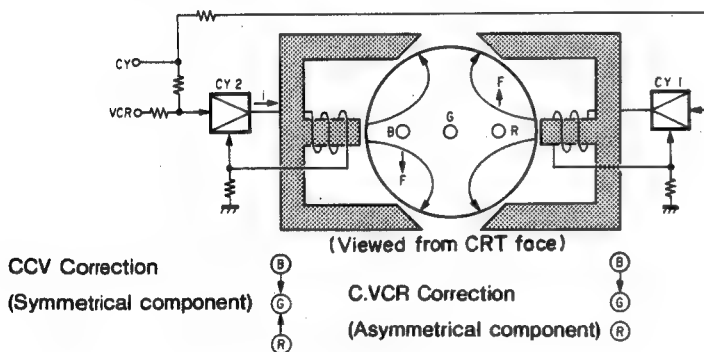


Fig. 37. Convergence Yoke Compensation Principle

The CY has a coil wound around the center leg of the E-type core. Compensation is performed by making a horizontal-period current flow into this coil. Thus applying an horizontal magnetic field to the side beams and moving the beams. CY1, which performs red beam compensation, and CY2, for blue beam compensation, are driven independently.

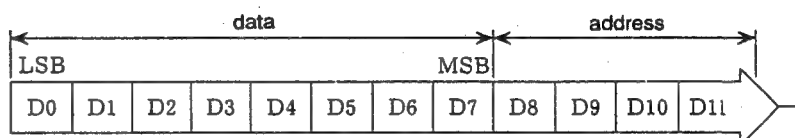
Corner vertical misconvergence and X-axis cross vertical misconvergence compensations are performed by the CY OUT compensation waveform generated by the M2 board. After being divided by R52 and R53 on the S board, the CY OUT signal passes through R6 and R33, and is then input to the CY circuit. After passing through R6, the CY OUT signal is input to the differential amplifier circuit composed of Q3 and Q4. The resulting output passes through the Q5 drive circuit, and then it is output from the complementary SEPP circuit composed of the Q8 and Q9 output transistors. This current is delivered to CY1 and the red beam is compensated. In the same way, the CY OUT signal input through R33 passes through the differential amplifier circuit composed of Q12 and Q13, and through the Q14 drive circuit. Then it is output from the Q17 and Q18 output transistors and this current is delivered to CY2. Compensation is performed so that blue and red beams move in opposite directions. This allows the red and blue beams to be aligned with the green beam as shown in Fig. 37.

The C VCR compensation signal generated at the M2 board is input to the CY2 drive circuit through R55, allowing for corner VCR component compensation by independently correcting the blue beam as shown in Fig. 37.

Video System Protocol

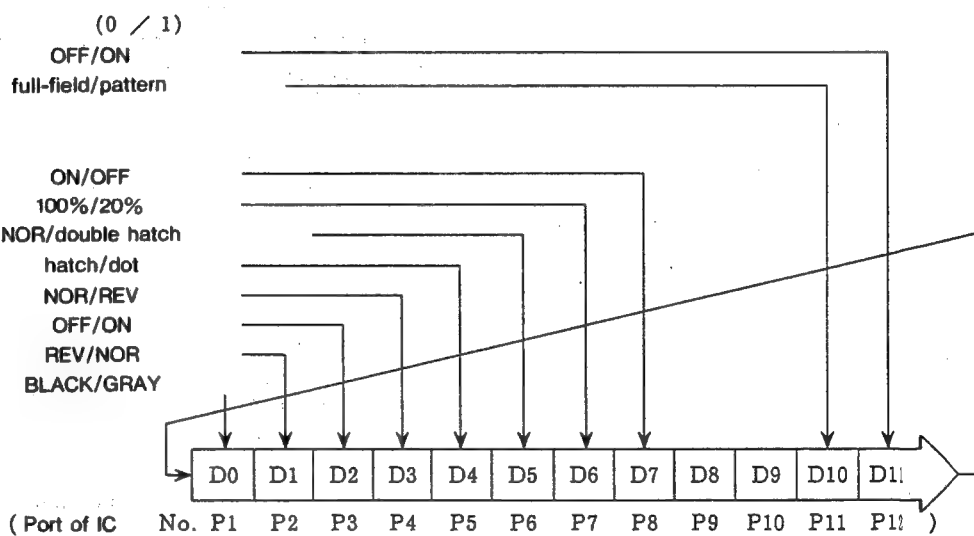
① Video control

A01	RC	Rch	GAIN	0 0 0 1
A02	GC	Gch	GAIN	0 0 1 0
A03	BC	Bch	GAIN	0 0 1 1
A04	RB	Rch	G1	0 1 0 0
A05	GB	Gch	G1	0 1 0 1
A06	BB	Bch	G1	0 1 1 0
A07	N.C	N.C		0 1 1 1
A08	DATA	LED	ON/OFF	1 0 0 0



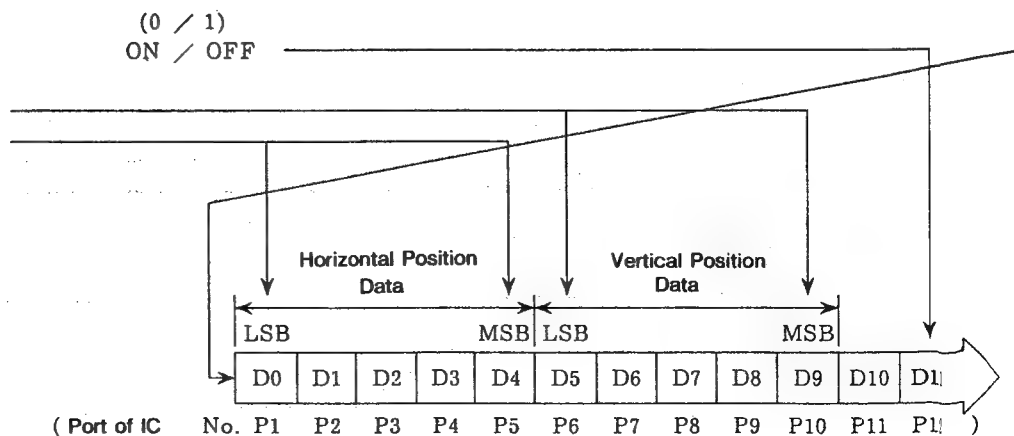
② SG. Cursor control

D11	SG	(0 / 1)	OFF/ON
D10	pattern cut-over		full-field/pattern
D9	N.C		
D8	N.C		
D7	H.BLK		ON/OFF
D6	video level		100%/20%
D5	pattern cut-over2		NOR/double hatch
D4	pattern cut-over3		hatch/dot
D3	pattern cut-over4		NOR/REV
D2	cursor		OFF/ON
D1	cursor mode		REV/NOR
D0	cursor level		BLACK/GRAY



③ Cursor Position

D11	cursor blinking	(0 / 1)	ON / OFF
D10	NC		
D9~5	V position		
D4~0	H position		



3-9-3. Video System Control Section

(1) D/A Converter Section/G1 DC AMP Section

This section generates the R/G/B video amplifier gain voltage of 0-5V, and also the G1 cutoff voltage (-40 to 0V). The data for control is sent to D/A converter IC24 from the M block together with the respective data addresses. The voltage for setting the gain of the RGB video amplifiers is output from A01 through 3 respectively, and is output by an operational amplifier through buffer IC27 (2/2), IC27 (1/2), and IC26 (1/2). The reference voltage for the D/A converter is created by the D1 Zener, and is input to IC24.

It is necessary to amplify the 0 to 5V voltage output from the D/A converter to -40V to 0V. For the R channel, the D/A converter output is amplified by the DC amplifier formed by operational amplifier IC25(1/2) and Q9. Q9 is base grounded, and feedback is supplied to the operational amplifier from the Q9 collector through R55. The gain and DC bias of this amplifier is determined by R52, R54, and R55.

(2) SYNC Input Circuit

The block diagram is shown below.

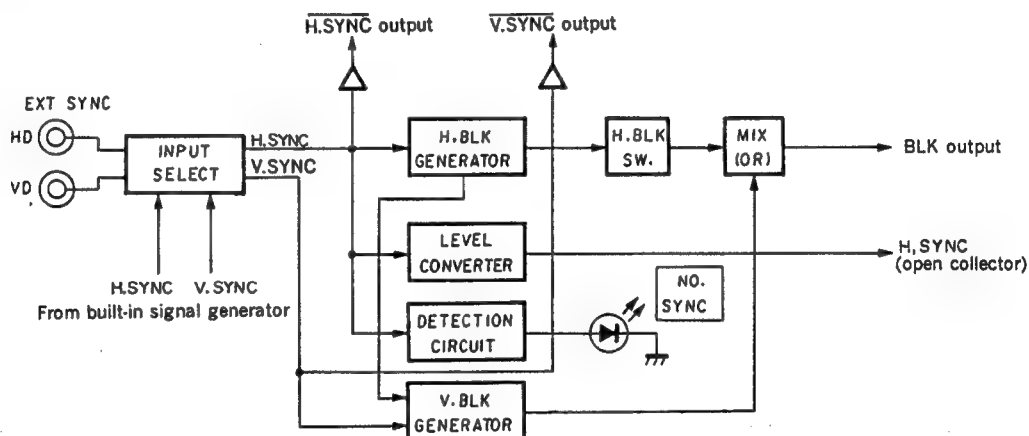


Fig. 40.

Input Switching Circuit

After the sync signals input from HD and VD are terminated by R8 and R7 (75Ω), selection of SYNC from the built-in signal generator is performed by IC29. The selected SYNC is output to the M block as $\overline{\text{H.SYNC}}$, $\overline{\text{V.SYNC}}$, and is also connected to the next stage. V.SYNC is not used, but is the trigger for V.BLK generation.

H.BLK Generation Section

The IC31 (1/2) one-shot multivibrator operates with the falling edge of H.SYNC as the trigger. The pulse generated at this time becomes the H.BLK pulse. The pulse width is determined by C7, R11, and RV1, and the relationship with the signal is shown below.

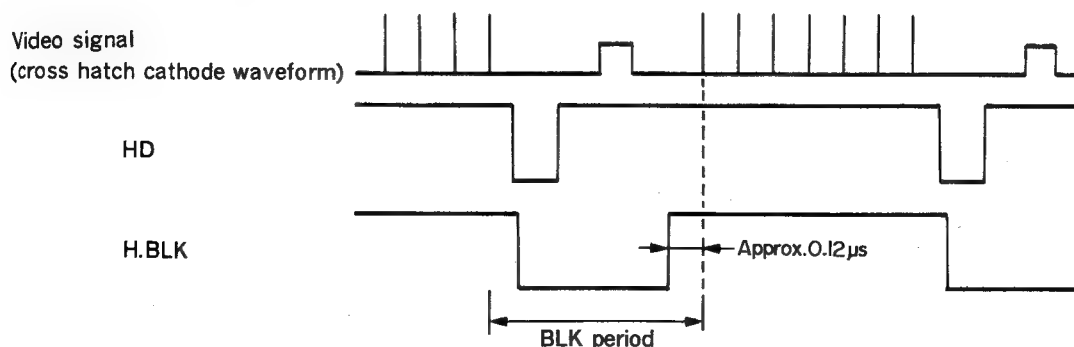


Fig. 41.

Level Conversion Section

Level conversion is performed by Q3 as the clamp/reference pulse generation section input uses a CMOS operating at approximately 10V.

H.SYNC Detection Circuit

The presence of H. SYNC is confirmed to make sure that SYNC is being properly input. While IC31 (2/2), a resettable one-shot multivibrator, is being triggered by continuous H. SYNC pulses, $2\bar{Q}$ is low and the LED is not illuminated. If H. SYNC is no longer input or V. SYNC is connected by mistake, $2\bar{Q}$ goes to high, and D7 is illuminated. However, this NO SYNC information is not output as FAIL information.

H.BLK SW

It is necessary to block H.BLK when the raster centering is adjusted. H. BLK is turned OFF by turning OFF the IC32 (4/4) gate. The V.BLK operation is not stopped at this time.

V.BLK Generation Section

The V.BLK pulse 58 horizontal periods from the falling edge of V.SYNC is generated by using the synchronous down counter IC30 to count the H.SYNC with V.SYNC as the trigger. \bar{CO} of IC30 pin ⑭ is "Low" during the V. active period, CK is always "High", and the counter does not operate.

When V.SYNC is input and \overline{APE} goes to "Low", 56 (decimal) set in data inputPI0 through 7 is loaded, and \bar{CO} goes to "High". This causes the H.BLK pulse from pin ⑬ 1Q of IC31 (1/2) to pass through IC28 (4/4) and to be applied to CK. However, there is no count down during the 3H period when V.SYNC is "Low"; counting starts from 4H. \bar{CO} goes to "Low" when the count reaches 0, and the count stops. The same operation is performed again when the next V.SYNC pulse is input.

The following is the timing chart for the various sections. This allows for a V.BLK pulse with a length of $58H + 1H$. BLK to be obtained from \bar{CO} .

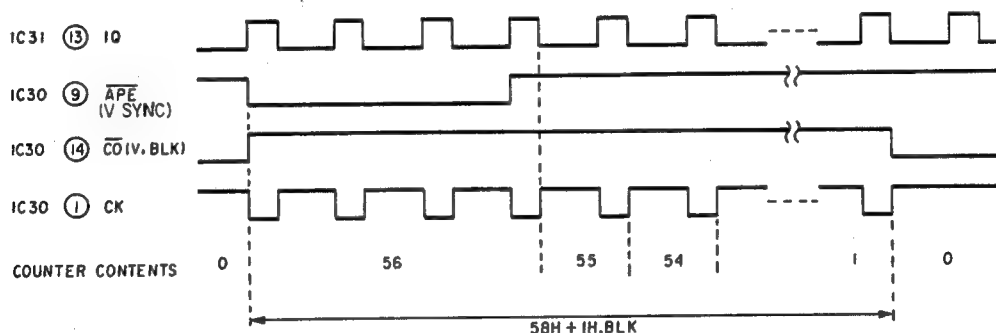


Fig. 42.

MIX(OR) Section

The H. BLK and V. BLK pulses obtained in the above manner are mixed by IC28 (2/4), and connected to the BLK pulse amplifier as BLK output.

(3) Blanking Pulse Generator

A blanking pulse of approximately 40 Vp-p can be obtained by switching Q13. This passes through the Q10 buffer and is mixed with the output of the G1 amplifier described in 3-9-3(1). For example, in the R channel, the blanking pulse D.C. level passes through R35, D4, and R68 from the 75V line during the active period, is connected to the G1 amplifier output, and the output voltage is roughly the same as the G1 amplifier output due to the voltage division ratio. D4 is off and this pulse is output while a low impedance of 40 Vp-p negative pulse is applied to the anode of D4 during the BLK period.

(4) Clamp/Reference Pulse Generator Section

The H.SYNC pulse is delayed slightly by R20 and C15, and triggers the IC33 (1/2) one-shot multivibrator. This output passes through the Q5 and Q6 totem pole buffer, and is output as a clamp pulse (PUL 1). The IC33 (2/2) one-shot multivibrator is triggered by the falling edge of this pulse, and the reference pulse (PUL 2) is output in the same manner. IC33 operates by the shunt regulator power supply formed by Q4, and this voltage is controlled by the temperature compensating circuit formed by thermistor TH-1. The amplitude of the output pulse changes when this voltage changes and the gain of the video amplifier changes. This circuit changes the pulse amplitude according to temperature to provide compensation for the video amplifier temperature-gain characteristics.

3-9-4. Internal Test Pattern Generator

(DDM-2801C ; Ser No. up-to 2,000,043)

(DDM-2801C2 ; Ser No. up-to 2,000,049)

(DDM-2802C ; Ser No. up-to 2,000,020)

(DDM-2802C2 ; Ser No. up-to 2,000,012)

The block diagram is shown in Fig. 43. The following is a description of each of the blocks.

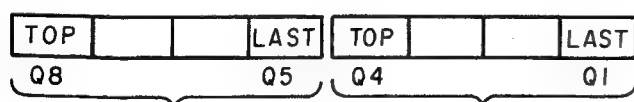
(1) SG Control Latch Section/Cursor Control Latch Section
 SG control and the type of cursor is selected by the 12-bit SG control latch. The cursor position is determined by the cursor control latch. Refer to section 3-9-2 for details on allocation. In Addition, SW1 is used to select what will be displayed on the screen. Setting SW1 to "HATCH" or "WHITE" will display either a cross hatch or all white test pattern. Setting SW1 to "NORMAL" allow use of the monitor's internal SG or an external SG. SW1 is usually set to "NORMAL".

(2) CLK Oscillation Section

This signal generator operates with a clock rate of approximately 44MHz, 1/8 of the pixel clock frequency. There is 3rd overtone oscillation by IC2 (1/4). The clock is stopped in the SG OFF mode by setting input 1 to "L" by obtaining the NAND output of IC2.

(3) H Counter/H Pattern Memory/Pattern Generation/Blanking Generation/Reset Generation Section

The clock is counted by the 9-bit sync counter formed by IC9, IC7, and IC12. The upper 7 bits are connected to the addresses of IC5 (Horizontal pattern memory). 8-bit data is output once every 4 clock cycles. Of the 8 bits, the pattern information is written in the upper 4 bits and the blanking area information in the lower 4 bits. These 4 bits of data are loaded into the shift registers of IC3 and IC1 once every 4 clock cycles, and pattern generation and blanking generation is obtained by having this data shifted out as the clock signal triggers these shift registers. Each address consists of the following data.



PATTERN H.SYNC : 0 BLANKING AREA : 0
 BLACK : 1 ACTIVE AREA : 1

The H.SYNC information is mixed with the pattern information. The blanking information is used to separate. H. SYNC information from pattern information. The falling edge of the H. SYNC is used for the counter reset timing. For this reason, the SYNC width is wider than the actual width due to the relationship with the cursor address. This poses no

problem as the SYNC trigger is applied at the falling edge. The timing chart for counter clear pulse generation is described in Fig. 44.

The contents output from the memory are switched by switching the MSB of the IC5 memory address using pin ⑥ of IC14. There is also a normal cross hatch (or dot) or double cross hatch (or double dot) selection.

(4) V Counter/V Pattern Memory/V Control Latch Section

A 12-bit asynchronous counter is formed by IC15 (1/2), IC18 (1/2), and IC18 (2/2). However, resetting of the lower 4-bit counter of IC18 (2/2) and the upper 8-bit counter are performed independently by memory output. The carry to the upper 8 bits is also by memory output. This is because it is necessary to forcibly reset the counter by memory output and to increment the upper counter in order to properly display the cursor in 17 places. Fig. 45. shows the counter and data output timing.

The contents output from the memory are switched by switching the MSB of the IC23 memory address using pin ⑥ of IC14. There is also a normal cross hatch (or dot) or double cross hatch (or double dot) selection.

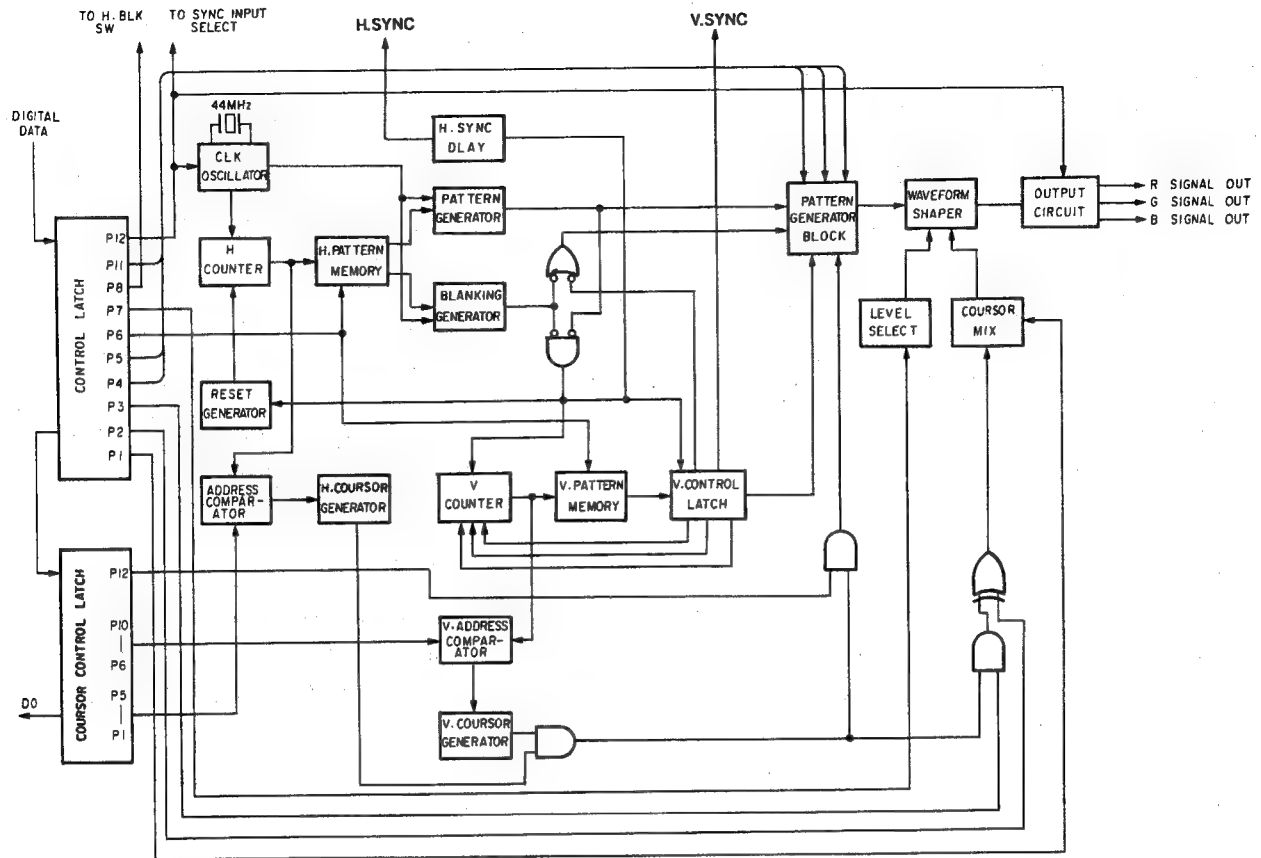


Fig. 43.

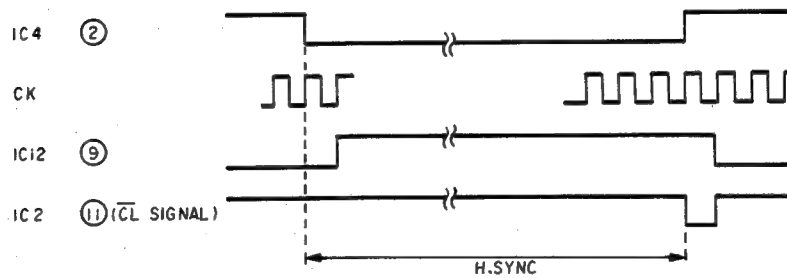


Fig. 44.

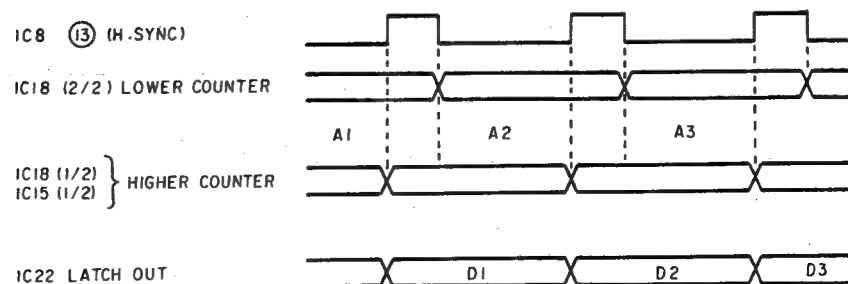
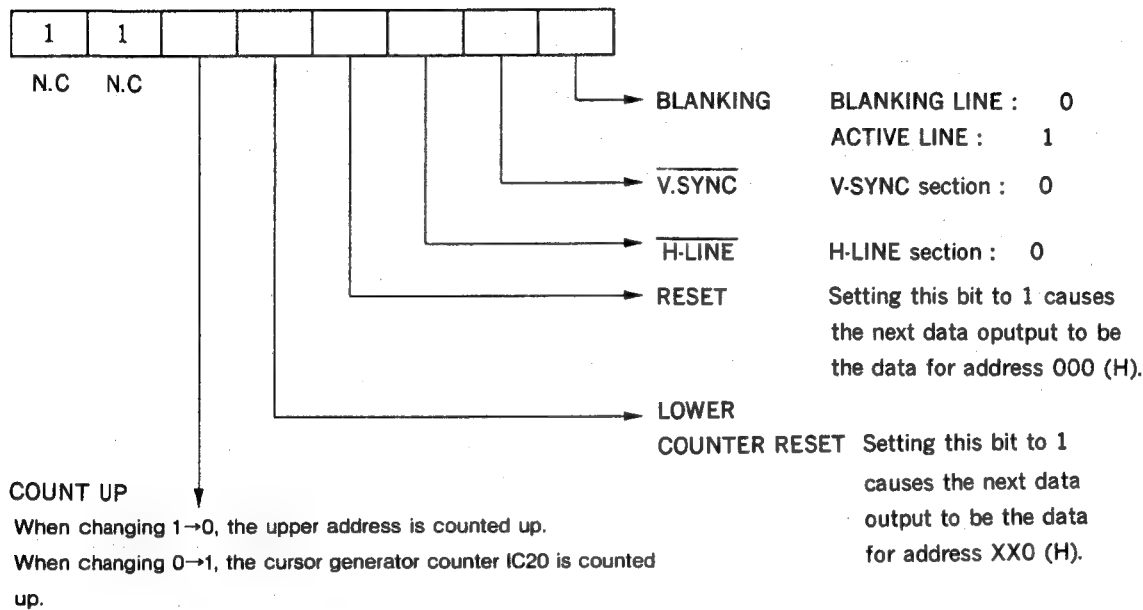


Fig. 45.

Each bit of memory is assigned as follows:



(5) Cursor Address Generator

IC16 evaluates whether the screen location currently being traced is the address designated for cursor indication. The output of the cursor position latch, IC19 port 1-5, is compared with the counter output, and "Low" is output from pin ⑱ if they match. A pulse in the horizontal direction for the cursor, whose size is designated by the IC13 counter, is generated with the "Low" signal as a trigger. The cursor size is set so that it is a cross hatch pattern (17 lines in vertical and horizontal direction) with a 128 pixel pitch, and the clock is used every 16 pixels or 16 lines to output a cursor that lasts for 14 clock cycles. When both H and V match the designated address, a cursor pulse for the H and V directions outputs from pin ⑦ of IC13 and IC20 respectively. These two pulses are anoded and the resulting signal increases the video output level at the designated address, and decreases the video output at all other addresses. This causes a cursor to appear on the screen.

In the H direction, the cursor may not necessarily appear exactly 16 pixels to the left or right of the vertical line as shown in Fig. 46 due to variations in the gate propagation time.

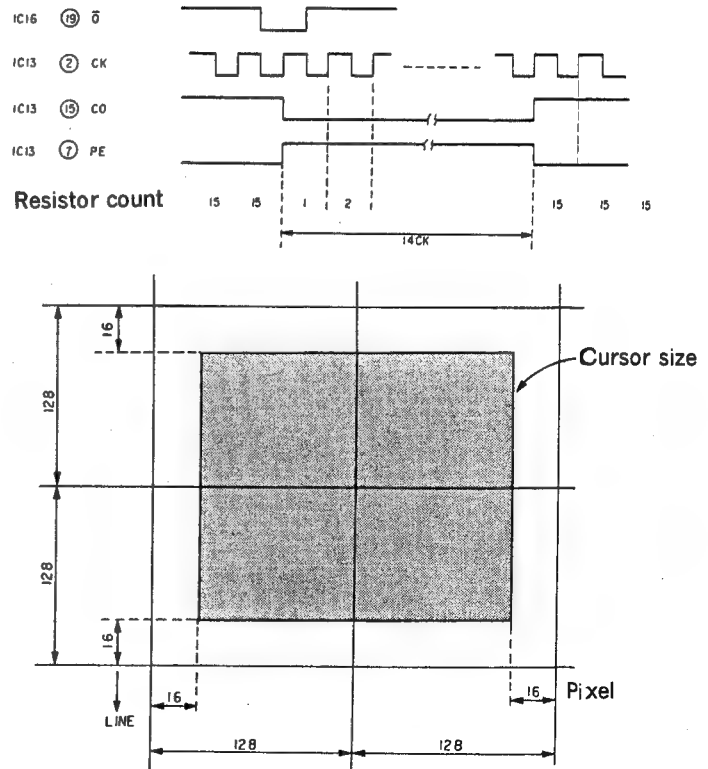


Fig. 46.

(6) Pattern Generator Block

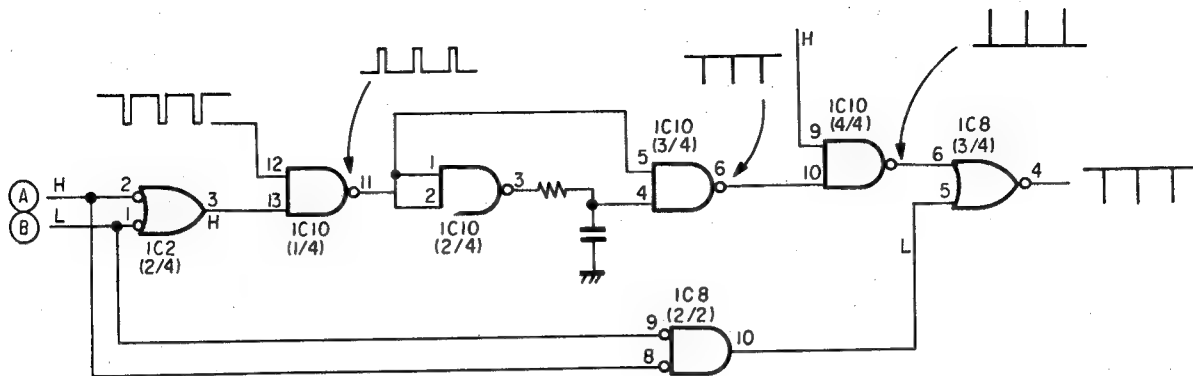


Fig. 47.

An 8-pixel-wide pulse is input to pin ⑫ of IC10 from pin ⑫ of IC3 at 128-pixel intervals. IC10 2/4 and 3/4 convert the 8-pixel-wide pulse to a width of approximately 1 pixel.

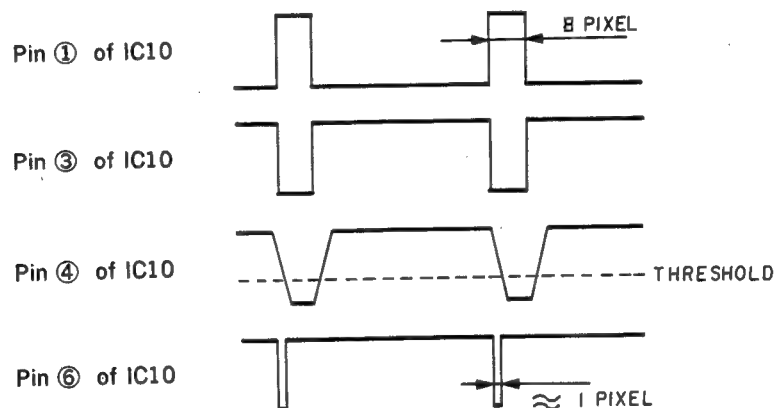


Fig. 48.

In this way, an approx. 1-pixel-wide pulse is output from pin ④ of IC8 at 128-pixel intervals. This allows for displaying vertical lines on the screen.

During crosshatch pattern operation, a low-level signal is input to ④ (see Fig. 47.) according to data written into the IC23 memory. The level at pin ⑩ of IC8 becomes high, and the output level low. This process is carried out at 128-line intervals.

During dot pattern generation, ⑥ is set high and pin ③ of IC2 becomes low. Thus, the output is always high. As in the crosshatch operation above, a low signal is input to ④ only for lines requiring dot display. Pin ③ of IC2 becomes high, pin ⑩ of IC8 becomes low, and 1-pixel pulse is output at 128-pixel intervals.

A full white pattern is obtained by setting pin ⑨ of IC10 low, which causes the output to become low.

The cursor is displayed by IC11(4/4) and mixes the cursor and

inverse information and sends the result to IC11(1/4) which mixes the pattern and inverse information. Finally, the blanking section is masked by IC8 (4/4) and the signal is input to the analog processing circuit in the next stage.

As for horizontal and vertical patterns, both the normal crosshatch version (17 vertical lines, 17 horizontal lines) and the double crosshatch version composed of 2-line (3-lines in the center) groups at 16-pixel intervals are written into the memory. They are selected by switching the uppermost memory address, which is done by the latch output.

(7) Waveform Shaping/Cursor Mix/Level Switching Block

At the normal 100% output level, Q25 is turned on by the latch output and the output level is determined by R104, R105 and RV3. This current is divided by Q17 and Q18 for cursor contrast modulation. Then it is switched by Q15 and Q16 for waveform shaping and it is converted to voltage by the load resistor R91.

When the output level is switched, Q25, which is controlled by the latch output, goes off. R106 and RV4, connected in series, restrict current further and lowers it to 20% of the original level. The following is an explanation of cursor display operation. When the cursor is not displayed, Q26 and Q23 are off, Q17 is on, and Q18 is off. All current passes through Q17, so the video signal is output at 100% of the set value. When the cursor is on and the normal mode is selected, Q23 and Q18 are turned on, while Q17 cuts off the whole screen except the cursor. In this condition, the screen is black except for the cursor, which is white. The cursor will be represented by a "+" if the crosshatch pattern is selected, and a "□" if all the white pattern is selected. To set the whole screen to an appropriate brightness except for the cursor, Q26 and Q23 are turned on. Q17/Q18 current flow ratio becomes approximately 7 : 3. This results in the background being displayed at 70% brightness and the cursor being displayed at 100%.

The Q17 collector current is switched by the Q15 and Q16 differential pair transistors according to the video pattern signal from the pattern generation block. The video signal is then output from the Q16 collector and sent to Q19.

In order to prevent black level variation due to cursor display, the Q18 collector current is sent to R91. Operation in this area is performed at +4V, obtained from the Q14 ripple filter, thus minimizing screen noise.

(8) Output Circuit

Since the built-in signal generator is OFF under normal operating conditions, the clock pulse is not generated, and external HD and VD are selected for sync switching. At the output circuit, Q24 is off, and the $-3.5V_{DC}$ bias applied by R114 and R118 is delivered to video boards through drive transistors Q20, Q21, and Q22. The internal circuit is then cut off, and the external video signal is received. When the built-in signal generator is turned on, Q24 and D12 go on. The video signal biased at approximately $2V_{DC}$ is delivered to the video boards, which switch to internal signal use. At this time, taking the Red channel as an example, a 10mA bias current passes through the drive resistor R121, and on to the video boards. This allows for proper circuit operation, including bias current.

3-9-5. Internal Test Pattern Generator

(DDM-2801C ; Ser No. 2,000,044 and higher)
 (DDM-2801C2 ; Ser No. 2,000,050 and higher)
 (DDM-2802C ; Ser No. 2,000,021 and higher)
 (DDM-2802C2 ; Ser No. 2,000,013 and higher)

The block diagram is shown in Fig. 49

(1) TEST PATTERN GATE ARRAY (CXD2007S)

All signals required for the test pattern generator are generated by this gate array (IC1). The gate array contains a 24-bit shift register. Digital data (refer to section 3-9-2 for a detailed explanation of this data) is used to control the output of IC1. The data is input at DI, shifted by the CLK signal, and then latched by the LD signal. Latching the data outputs the signals needed to generate the pattern, cursor, and H/V sync. The following three signals are used to generate the pattern and the cursor. SG OUT outputs a signal to the PULSE GENERATOR block where the rising edge of the signal is used to generate a single pixel. This sequence is only initiated when a single pixel is to be displayed, as is the case with the dot patterns and also with the vertical lines of the cross hatch patterns. PIXEL becomes "low" when a horizontal line is to be displayed, as is the case with the cross hatch pattern's horizontal lines and also with the all-white pattern. The output of INV is used to invert the test pattern and cursor signals (SG OUT and PIXEL.)

CURS outputs a signal that is used to display the cursor. This signal is triggered according to the cursor's on-screen position. Depending on the type of cursor to be displayed, this signal switches between logical negative and positive. The output of INV can also be inverted depending on the type of cursor. The first type of cursor is used to display the adjustment position when adjusting convergence or focus. The second type of cursor is displayed to indicate that the adjustment data has reached its maximum or minimum value. The outputs of Q0 (pin 7) and Q6 (pin 8) are explained in part (7). Of the remaining pins, HB 0-5, HF 0-2, HP 0-2, VB 0-5 and VP 0-2 are all set to Sony standard timing.

(2) CLK OSCILLATOR

IC1 uses as a clock frequency of 1/8 of the pixel clock, approximately 44MHz. IC2 (4/4) causes the crystal's 3rd-overtone oscillation, which results in the 44MHz frequency. When IC1 is in SG OFF mode the clock is stopped by inputting a "low" signal to IC2 (4/4).

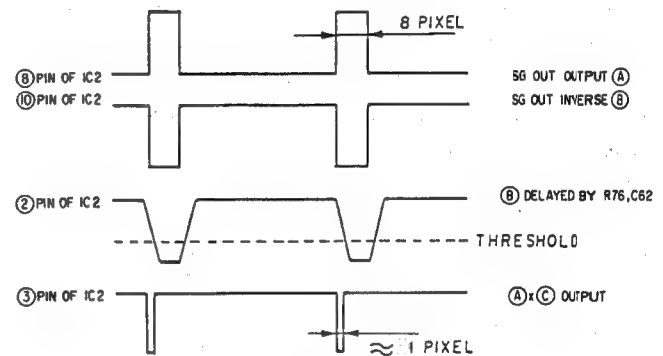


Fig. 50.

(3) PATTERN GENERATOR BLOCK

A pulse 8 pixels wide is output at 128 pixel intervals from pin 19 of IC1. This is input to pin 8 of IC2 (1/4). This 8-pixel wide pulse is changed to a width of approximately 1 pixel by IC2 (1/4) and (2/4). The principle is shown in Fig. 48. This 1 pixel pulse is input to IC11 (2/4). INV is also input to IC11 (2/4). Depending upon whether INV is positive or negative the pattern and cursor will be inverted. Finally the blanked section of the pattern is masked by IC2 (3/4) and the signal passed on to the analog processing circuit in the subsequent stage. This Pattern Generator block can generate two cross-hatch patterns: the normal 17 vertical, 17 horizontal line pattern, or the double-cross-hatch pattern with double horizontal and vertical lines (triple lines in the center) at 16 pixel intervals.

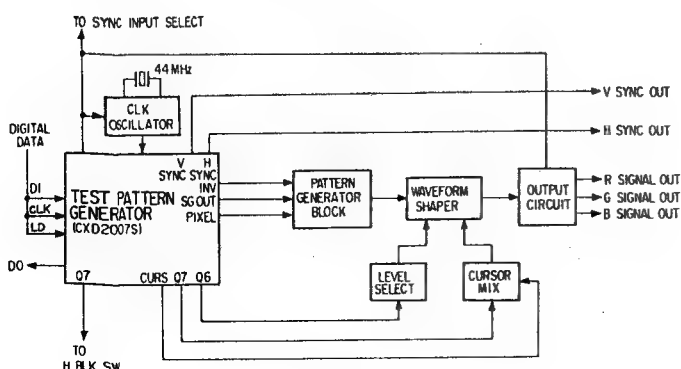


Fig. 49.

(4) Waveform Shaping/Cursor Mix/Level Switching Block

At the normal 100% output level, pin⑧ "Q6" of IC1 is low, Q27 is turned off, Q25 is turned on, and the output level is determined by R104, R105 and RV3. This current is divided by Q17 and Q18 for cursor contrast modulation. Then it is switched by Q15 and Q16 for waveform shaping and it is converted to voltage by the load resistor R91.

When the output level is switched, Q25 goes off. R106 and RV4, connected in series, restrict current further and lowers it to 20% of the original level. The following is an explanation of cursor display operation. When the cursor is not displayed, Q26 and Q23 are off, Q17 is on, and Q18 is off. All current passes through Q17, so the video signal is output at 100% of the set value. When the cursor is ON and the normal mode is selected, pin⑦ (CURS) of IC1 is High for the whole screen except for the cursor. Then Q23 and Q18 are turned on, while Q17 cuts off. In this condition, the screen is black except for the cursor, which is white. The cursor will be represented by a "+" if the crosshatch pattern is selected, and a "□" if all the white pattern is selected. To set the whole screen to an appropriate brightness except for the cursor, pin⑦ (Q ϕ) of IC1 becomes high and Q26 is turned on. Q17/Q18 current flow ratio becomes approximately 7:3. This results in the background being displayed at 70% brightness, and the cursor being displayed at 100%.

The Q17 collector current is switched by the Q15 and Q16 differential pair transistors according to the video pattern signal from the pattern generation block. The video signal is then output from the Q16 collector and send to Q19.

In order to prevent black level variation due to cursor display, the Q18 collector current is sent to R91. Operation in this area is performed at +4V, obtained from the Q14 ripple filter, thus minimizing screen noise.

(5) Output Circuit

Since the built-in signal generator is OFF under normal operating conditions, the clock pulse is not generated, and external HD and VD are selected for sync switching. At the output circuit, Q24 is off, and the -3.5V_{DC} bias applied by R114 and R118 is delivered to video boards through drive transistors Q20, Q21, and Q22. The internal circuit is then cut off, and the external video signal is received. When the built-in signal generator is turned on, Q24 and D12 go on. The video signal biased at approximately 2V_{DC} is delivered to the video boards, which switch to internal signal use. At this time, taking the Red channel as an example, a 10mA bias current passes through the drive resistor R121, and on to the video boards. This allows for proper circuit operation, including bias current.

3-10. A BOARD

3-10-1. Outline of A Board Functions

The A board contains 1-channel's video circuits from the video signal input to the cathode drive. Three of these boards are used to drive the R, G and B channels respectively. Each board is composed of a gain control block for contrast con-

trol, a preamplifier, a cathode drive amplifier, control circuits for controlling these amplifiers (clamp circuit, etc.) and a failure detection circuit for detecting circuit misoperation.

Block Diagram

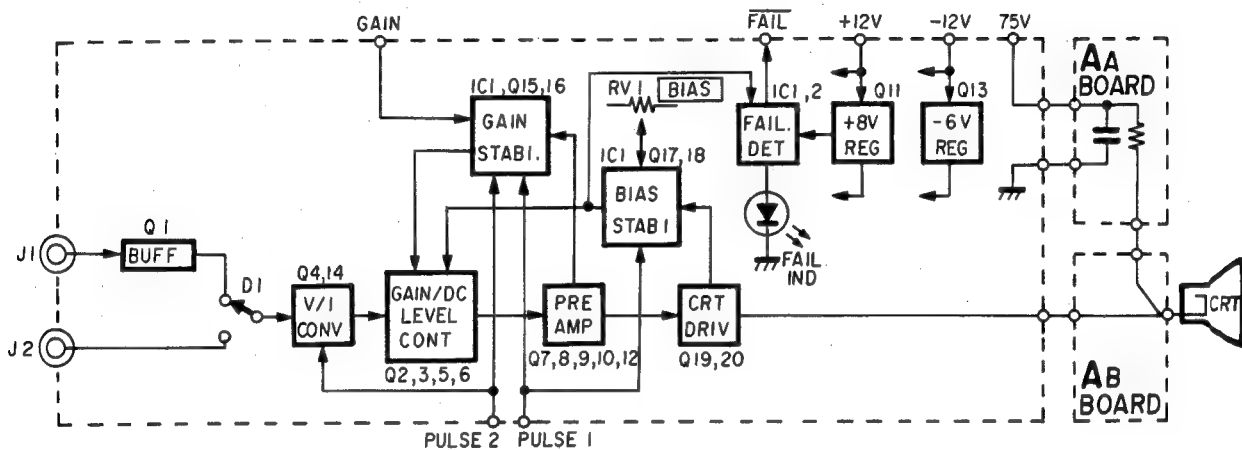


Fig. 51

3-10-2. A Board Inputs

(1) Power Supply

Supplies 75V, +12V and -12V power.

(2) Input Signals

An external 0.714 Vp-p video signal is delivered to J1, and the signal from the built-in SG (B board) to J2.

(3) Clamp Pulse (PULSE1) and Reference Pulse (PULSE2)

Pulses, for which the timings below are required, are supplied by the B board.

(4) The GAIN CONT control DC voltage is supplied to the GAIN terminal.

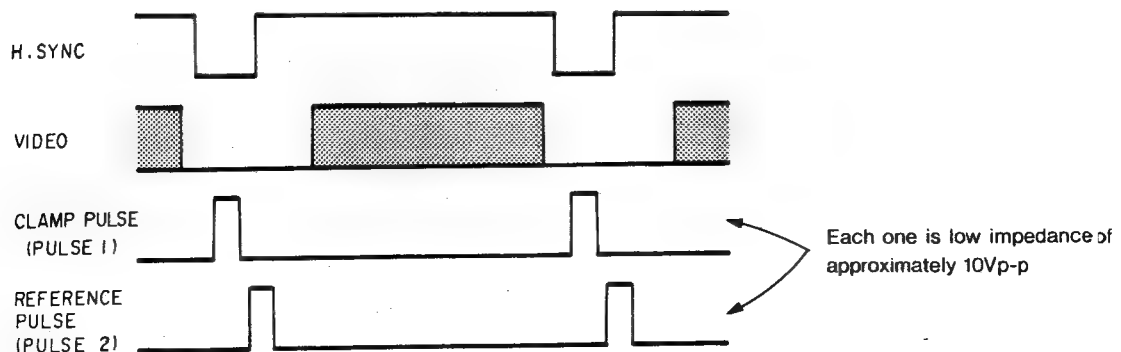


Fig. 52

3-10-3. Operation of Each Block

(1) Buffer and Input Switch Block

The video signal input from J1 is terminated at 50Ω by R1 and R2, then it goes into the Q1 emitter follower. The emitter of Q1 can also receive a signal from J2 after it passes through D1. Normally, since J2 DC is biased at $-3V_{DC}$, D1 is cut off and the input from J1 appears at the emitter of Q1. As the signal sent in from the B board is input at a $+3V_{DC}$ bias, switching to the signal from the built-in SG occurs when Q1 is cut off and D1 goes on. The selected input signal is DC level-shifted by D2, then input to the V/I CONV block.

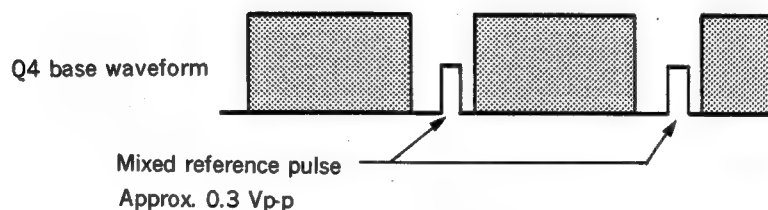


Fig. 53

(2) V/I Conversion Block

The reference pulse (PULSE2) for gain control is mixed with the signal at the Q4 base input. The current source consists of Q14, whose collector is alternately set to a low impedance by a large-capacity capacitor. Potential of this collector changes according to the DC level of the signal input to J1, allowing for DC cut without a coupling capacitor. V/I conversion is performed by R9 and Q4, and current is input to the gain control block.

(3) Gain/DC Level Control Block

Gain control is performed by dividing the signal current at Q2 and Q3. The voltage at the base of Q3 is fixed at $0V$. When voltage at the base of Q2 decreases, more signal current flows into Q3 and the gain increases. The base of Q2 is controlled by the gain stabilizer, which will be discussed later. D3 has been connected in series to improve high-range isolation and circuit operation stability when gain is attenuated. The gain controlled signal passes through the Q5 cascade amplifier, and out of its collector. Power for the Q5 collector load resistor is supplied by the bias stabilizer block, allowing for optimum setting of DC bias. After undergoing gain control and DC level control as explained, the signal proceeds to the next stage via the Q6 emitter follower.

(4) Preamplifier Block

The video signal undergoes DC level shift at D4, then it is amplified 100% by Q7. After passing through the Q8 emitter follower buffer, the signal undergoes preamplifier output processing at Q9 and it is input to the CRT drive. Q10 works as a current source for Q9. The signal is also sampled at the base of Q9 by the Q12 buffer and sent to the gain stabilizer circuit to maintain a constant amplifier gain.

(5) CRT Drive Amplifier Block

The signal is V/I-converted by Q19 and passes through the Q20 cascade amplifier. These two transistors typically amplify the signal to $40 V_{p-p}$ (approx. 20 times the preamp output). The signal is then sent to the CRT cathode via the AB board. The AB board is equipped with a floating capacity compensation circuit and a cathode matching circuit. There is a 200Ω load resistor on the AA board (ceramic board). Connection with the cathode and the load resistor is achieved through the AB board (flexible cable.)

(6) Gain Stabilizer Block

DC bias is removed from the preamplified signal by C31. The clamp pulse (PULSE) is input to the Q16 gate. Since the drain-source interval is turned on only at High sections, the pedestal is clamped to $0V_{DC}$. Since the Q15 gate is also turned on by PULSE2 only on High sections, the potential V_R at the end of the reference pulse mixed to the signal is output to the Q15 drain.

This sampled voltage (V_R) is input to the IC1 (1/4) operation amplifier. There it is compared to the gain control voltage from the outside. The base voltage of the gain control block Q2 is then changed so that error becomes 0. The IC1 (2/4) operation amplifier, besides inverting polarity, also works as a buffer to drive the base of Q2 at low impedance.

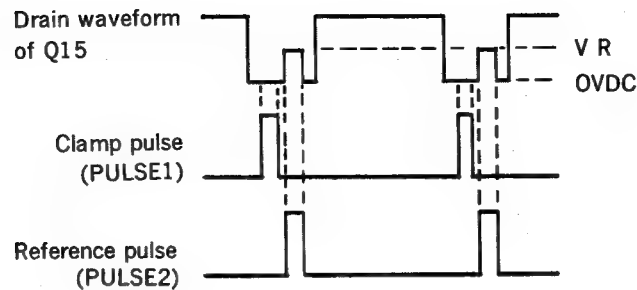


Fig. 54

(7) Bias Stabilizer Block

The current flowing from the Q19 emitter to the last stage is sent through R64 to be sampled by Q18. The clamp pulse (PULSE) is input to the Q18 gate. During the pedestal interval, Q18 is turned on and the potential at the emitter of Q19 is input to the IC1 (4/4) operation amplifier. This potential is compared to the voltage set by RV1 **BIAS**, and feedback is applied so that error becomes 0. The output from IC1 (4/4) passes through the IC1 (3/4) inverting amplifier, in which D5 prevents negative outputs for Q17 protection. The output then passes through the Q17 buffer and it is delivered as a power supply for load resistor R14 of the DC level control block Q5. This voltage allows for bias control of the pre-amplifier and the CRT drive amplifier located after Q6. By adjusting this DC feedback loop, which has RV1 voltage as a reference, the bias current of the pedestal (background) section can be kept constant. This allows for a stable setting of pedestal voltage.

(8) +8V, -6V Regulator Block

Since amplifier blocks work in a DC direct-coupled configuration and high f_T transistors are used, +8V and -6V power is supplied to the preamplifier. Q11 is used for the +8V system, and Q13 for the -6V system. Both are series regulators.

(9) Failure Detection Block

This block incorporates a circuit to detect circuit misoperation. The following two points are monitored: ① Is DC bias within the normal range? ② Is power supply current below specifications? Both values are compared to the reference voltage at the IC2 comparator. Regarding point ①, output of the IC1 (3/4) power supply, which is subject to DC level control, is considered normal if within the approximate range of 5 to 10V corresponding to the intermediate potential divided by R49, R50 and R51. As for ②, current is detected on the basis of the voltage drop across R46 in the +8V regulator. The condition is considered abnormal if the detected current goes beyond a level of approximately 100 mA. Abnormal current detection is possible even when there is no 75V power supply because the base current of Q19 increases. When an abnormality occurs, the failure indicator LED is lit by IC2, and the FAIL signal is output through an open collector. The FAIL signal for each channel is connected by a wired OR on the B board.

3-11. M1 BOARD

A block diagram of the M1 and M2 boards is shown in Fig. 55. The M1 board is a digital control circuit whose main component is an 8-bit microprocessor. It performs data calculation for convergence and focus compensation, and produces the digital data required for picture distortion compensation. A 16-Kbyte EEPROM is provided as memory for all adjustment data. This data can be updated from an external computer or from the remote controller via the RS422A serial interface. This board also contains a data processing circuit for the landing checker and white balance auto setup, and has a self-diagnosis function.

3-11-1. CPU/Peripheral Circuit

The Z-80A (IC1) is the main component of digital circuit control. It uses a 16-bit (A0 to A15) address port, an 8-bit (D0 to D7) data port and an external control terminal. The main memory units (IC4 to IC8) are located on the CPU address and data bus. The memory to be accessed is selected by IC9 (address decoder.) IC1 also has an $\overline{\text{INT}}$ terminal for interrupt processing when necessary. Interrupt request timing is controlled by IC2 (CTC), which generates the $\overline{\text{INT}}$ signal synchronized to three trigger inputs: TRG0 (VD), TRG1 (external switch) and TRG2 (external communication control). Besides controlling CPU interrupt processing, IC2 divides the clock pulse input to the TRG2 terminal by 12 and delivers the baud rate clock pulse (153.6 kHz) to IC3 (USART). The CPU clock frequency, 3.6864 MHz, is supplied by the X1 crystal oscillator. When power is turned on or the S1 switch on the M1 board is pressed, IC25 generates a reset pulse of approx. 500 ms to initialize the CPU and its peripheral control ICs and perform adjustment data transfer (EEPROM to RAM and DAC).

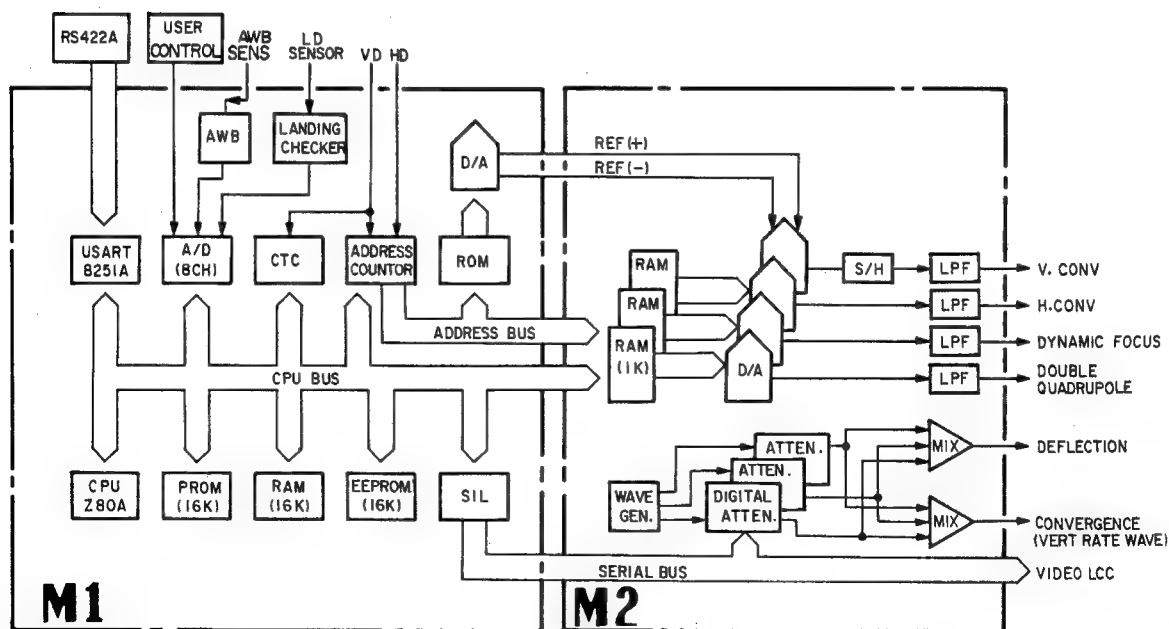


Fig. 55

3-11-2. External Communication Control Block

Communication with external equipment is performed through IC3 (USART, Universal Synchronous/Asynchronous Receiver Transmitter).

Asynchronous serial transfer is used as a communication format, and the baud rate is set to 9,600. See Table 11-1 for details on the communication format. The timing chart of the data format of send/receive and the handshake line is shown in Fig. 56.

Input/output lines of the IC3 serial ports (TXD, RXD, $\overline{\text{DTR}}$, $\overline{\text{DSR}}$) are connected to IC26 via the selector IC27. IC27 has been provided for communication system self-diagnosis. It switches to self-diagnosis mode every time power is turned on, with TXD (IC3 pin ⑨) sending data to RXD (pin ③) to check if the transmitted and received data match. This test is completed instantaneously, and if a normal result is obtained, the selector circuits of IC27 return to the connection pattern shown in the circuit diagram, and the communication mode is set. IC26 is a differential driver which converts the signal to the RS-422A format.

SIGNAL FORMAT	RS-422A
BAUD RATE	9,600
MODE	ASYNCHRONOUS
CHARACTER LENGTH	8 bits
PARITY	EVEN
STOP BIT	1 bit

Table 11-1. Communication Format

3-11-3. Memory Block

The main memory block is composed of IC4 to IC8. The memory addresses assigned to each device and their functions are shown in Table 11-2.

The CPU executes commands in sequence following the program stored in IC4, but actual data processing is performed by the operation RAMs, IC5 and IC6.

The compensation data for each function is processed in IC5 and IC6 when the CPU receives the adjustment commands and data through the communication interface. IC7 and IC8 are nonvolatile memories where all adjustment data required for the monitor's operation are stored. The data is sent to IC5, IC6 and to other boards when power is turned on or the **RESET** button is pressed. Inversely, when the CPU receives the **SAVE** command, RAM (IC5, IC6) contents are copied onto IC7 or IC8 and the adjustment data is rewritten. Memory addresses from 8000 to 9FFF (h) are assigned to RAM IC9 thru IC15 on the M2 board. Addresses 6000 to 7FFF (h) are not used.

Function	Assigned address
IC4 16-Kbyte PROM	0000 - 3FFF (h)
IC5 8-Kbyte SRAM	4000 - 5FFF (h)
IC6 8-Kbyte SRAM	A000 - BFFF (h)
IC7 8-Kbyte EEPROM	C000 - DFFF (h)
IC8 8-Kbyte EEPROM	E000 - FFFF (h)

Table 11-2.

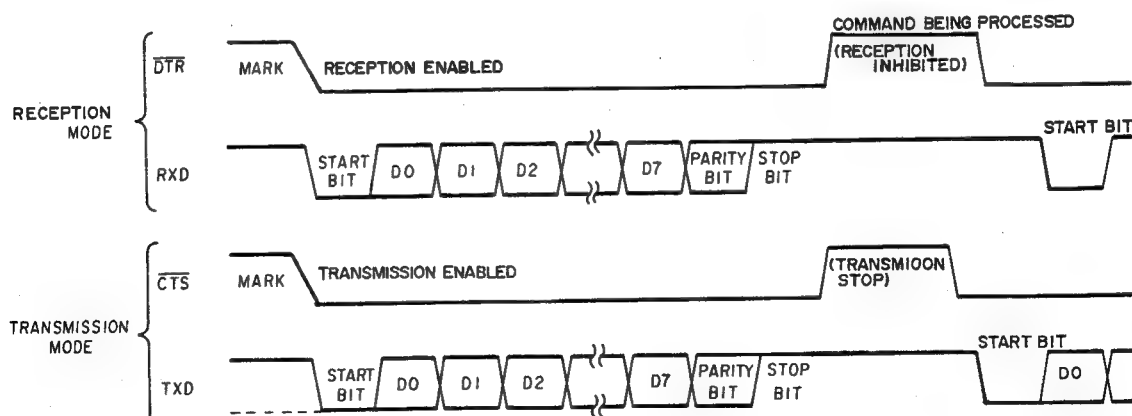


Fig. 56

3-11-4. Address Counter Block

IC28 and IC29 generate memory addresses for the digital convergence and focus compensating circuits. In order to divide the screen into 22 points horizontally (including horizontal blanking) and 17 points vertically, this circuit obtains a regular counter output from HD and VD. The internal equivalent circuit of IC29 is shown in Fig. 57.

The horizontal counter reference clock pulse is obtained from the HD pulse input to IC28 and the PLL circuit, which consists of the programmable divider IC29 (set to 22) and the HD pulse. This reference clock pulse is input to the lck terminal of IC29, where horizontal addresses Q0~Q5 (HA0 to HA5) are generated by an IC29 built-in 6-bit binary counter (I).

The vertical counter reference clock pulse is input to the 2ck terminal of IC29 by the HD pulse. Then vertical addresses are generated by the IC29 built-in 8-bit binary counter (II) and 4-bit binary counter (III), which are connected in cascade. The 8-bit binary counter (II) outputs Q6 to Q13 (RA0~RA7) are counted for one interpolation period (256 lines), then used as addresses (RA0 to RA7) for interpolating ROM IC 36. The 4-bit binary

counter (III) generates 256-line-period signals required to obtain addresses for even and odd adjustment points (17 in total), time-dividing them with an internal selector and sending them to Q14 to Q17 (VA1 to VA14).

The S3 DIP switch is used to adjust the phase of adjustment points and the compensating waveform. This is accomplished by changing the V.BLK time of the input signal.

Values assigned to each bit are as shown in Fig. 58.

The S3 setting is determined from the equation $126 - V_{BLK} + V_{fp}$. V_{BLK} is the number of horizontal lines (64) that occur during vertical blanking. V_{fp} is the vertical front porch which equals 3 horizontal lines. Therefore, the correct S3 setting (for the DDM-2801C timing) should equal 65 ($126 - 64 + 3$). For odd numbers, set to the next highest even value.

Example:

When $V_{BLK} = 64H$

Setting = $126 - 64 + 3 = 65$

Set to 66.

Note: Standard DDM-2801C timing.

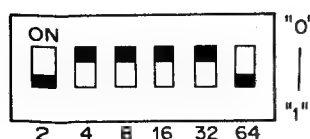


Fig. 58.

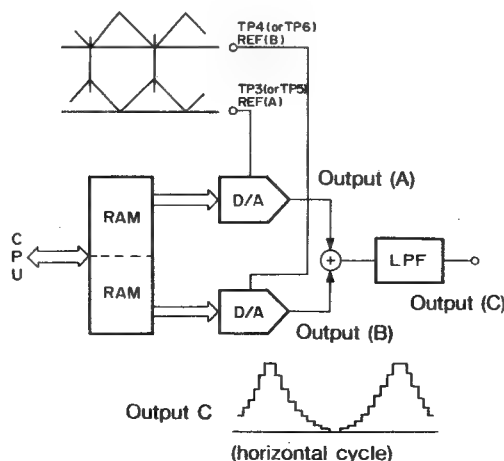


Fig. 59. Principle of Vertical Interpolation

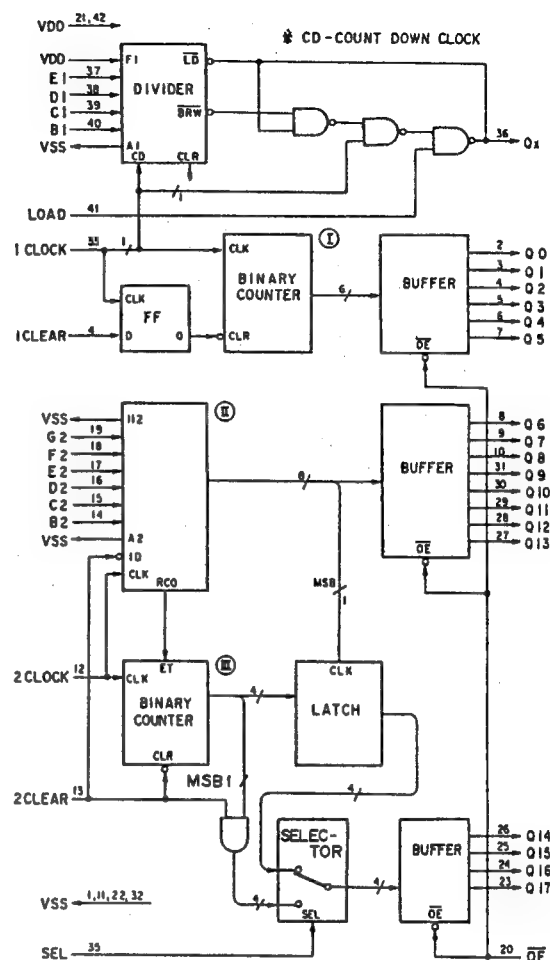
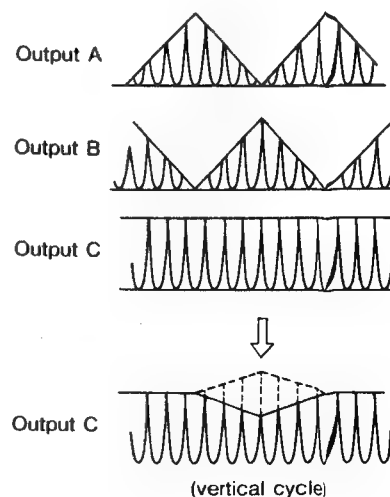


Fig. 57. Equivalent Circuit of IC29



3-11-5. Interpolation Waveform Generator Block

This circuit, composed of IC36 (PROM), IC37 (D/A converter) and IC38 (operational amplifier) generates the modulating waveform required for data interpolation in the vertical (amplitude modulation) direction. IC36 (PROM) data is read out in 256-line periods by the RA0 to RA7 address signal generated at the address counter block, and the four voltages shown in Fig. 60 are output from IC38. These waveforms are input to IC9 through IC15 on the M2 board, and are used as reference voltages for the D/A converters incorporated into the ICs as shown in Fig. 59. Compensation data read out from RAM is amplitude-modulated by the D/A converter, allowing for proper vertical interpolation. The four compensating waveforms are paired (TP3 with TP4, TP5 with TP6). The output from TP5 and TP6 is used for vertical convergence compensation, and that from TP3 and TP4 for horizontal convergence and focus/beam spot compensation.

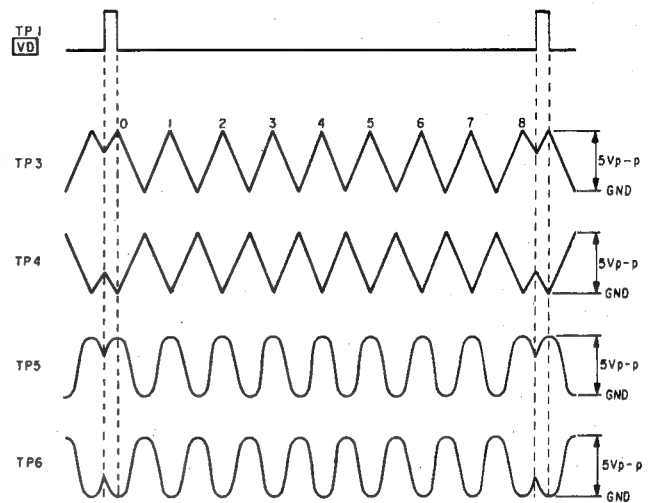


Fig. 60

3-11-6. Serial Data Transmission Block

This block transfers data to serial D/A converters and shift registers on the M1 and other (M2, B, S) boards. This block converts parallel data to serial data and outputs it, one bit at a time, to the various blocks at the rising edge of the SR CLK

pulse generated by IC10. CPU bus lines D0 (M1 board), D1 (B board), D2 (M2 board) and D3 (S board) are used as data lines. As shown in Fig. 61, one data block consists of 12 bits; 4 for address and 8 for data. Data is output when a load pulse is sent in.

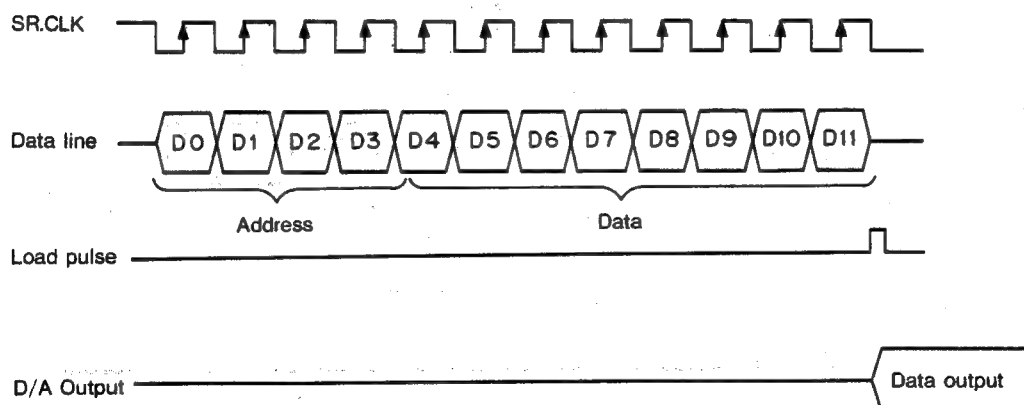


Fig. 61

3-11-7. A/D Converter Circuit

IC32 is a sequential conversion type A/D converter with 8 bits of resolution. It converts the 8-channel analog input voltage into 8-bit serial data, which is then output from Pin ⑰. DC voltage from the user control (J3 board) is input to analog

terminals A0 to A4. A stable DC voltage ($5V_{DC}$) is output from Pin ⑱ of IC32 and used as user control reference voltage.

3-11-8. Landing Adjustment System

This circuit, used for the automatic setup of purity (landing) adjustment, is composed of IC40 and IC32. Its operating principle is shown in Fig. 62. First, a small current detected by the landing sensor (DDM-LS10) is amplified by IC40 (1/4 and 2/4) AGC amplifier. Then it undergoes peak holding at IC40 (3/4) and it is sent to the A/D converter via the IC40 (4/4) buffer. The current flowing through the LCC coil or the purity coil components located close to the landing sensor is controlled by the data sent into the A/D converter so that maximum green output is obtained over the entire screen. Q3 and A4 generate a delay pulse from the \overline{VD} signal. During this delayed period, the peakheld voltage undergoes A/D conversion, and peakholding is cancelled by the reset switch Q2.

3-11-9. Auto White Balance Adjustment System

The circuit composed of IC43, IC34 and IC32 as shown in Fig. 63 is a high sensitivity digital ammeter that accurately measures the CRT beam current with the current detector circuit on the P board. The IC34 D/A converter is provided to cancel the HV Block, focus potentiometer and other bleeder currents contained in ABL. IC 34 generates A3 and A2 output voltage. A3 output voltage is used to cancel the bleeder current coarsely, and A2 to fine cancel it.

The principle of the auto white balance adjustment system is as follows.

The F.B.T. secondary winding (ABL) current is detected, converted into analog voltage and input to the AWB SENS terminal. This ACO in-signal is mixed to the IC34 D/A converter output voltages A2 and A3. As a result, the actual real beam current signals are obtained as AWB SENS1 and AWB SENS2 from IC43 (1/4) and converted into two types of digital data at the IC32 A/D converter. These digital data are processed so that the white signal level and the black signal level are set to maintain the constant beam currents, respectively.

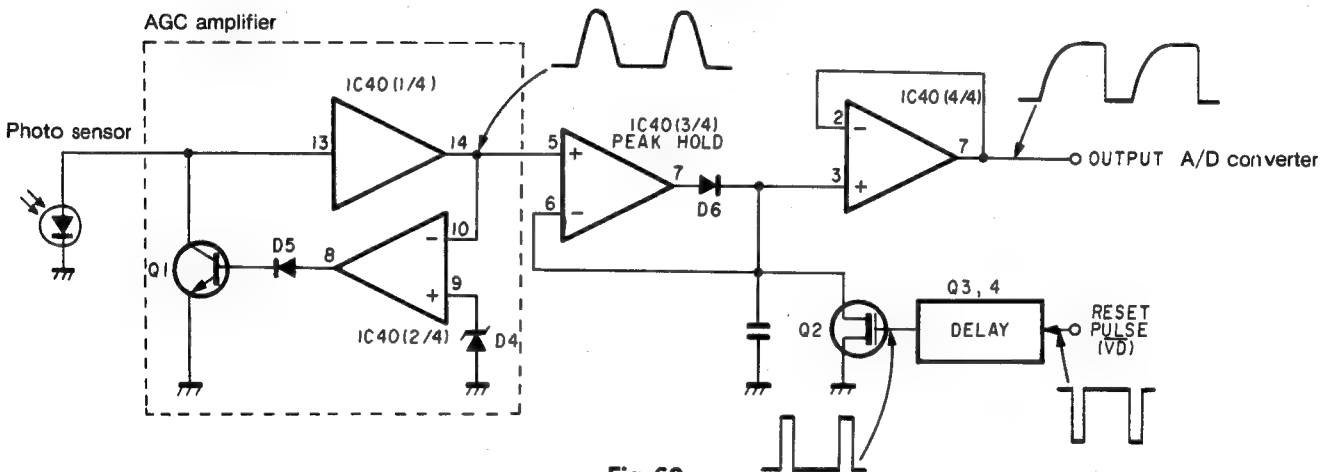


Fig. 62

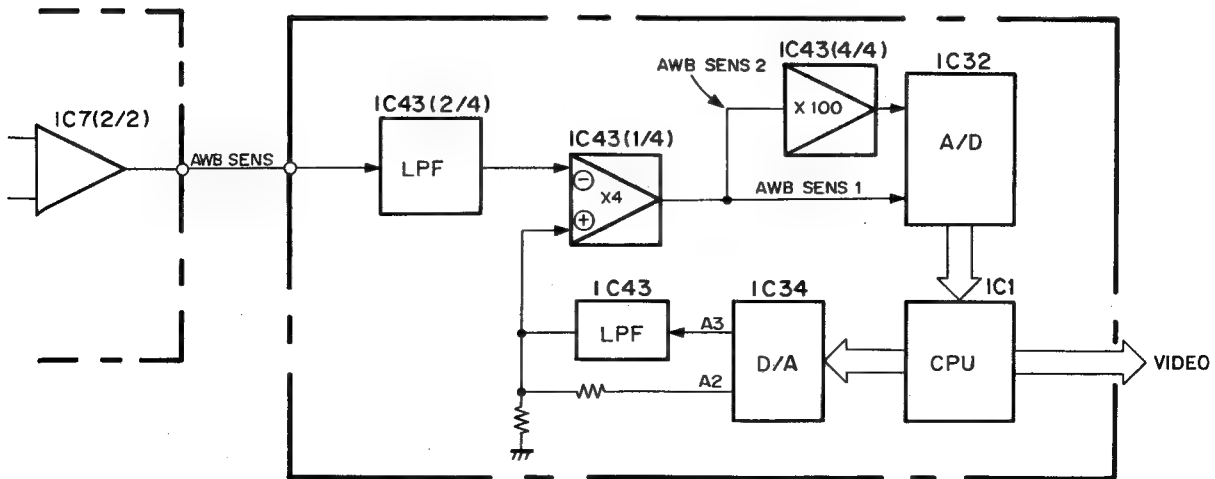


Fig. 63

3-11-10. Self-Diagnosis Function

The M1 board is provided with a self-diagnosis function. When power is turned on, it performs the checks shown in Fig. 64. During execution of the main routine, the M1 board status is constantly displayed. The board status is sent to a specified location in IC5 (RAM) and then displayed on the ND1 7-segment display. The meaning of each number is shown in Fig. 65. This status can also be monitored with an external computer or remote controller using the "STATUS" command.

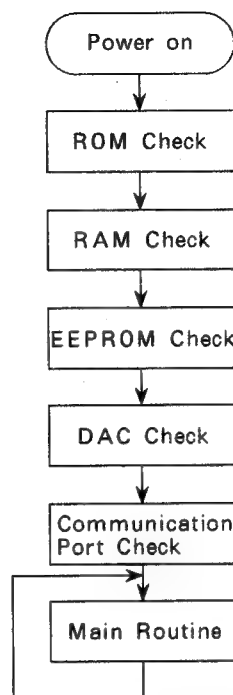


Fig. 64. Flow Chart of the Self-Diagnostic System

Display Number	Failure Content	Failure Area	Error Detection Method
7	board failure	Possible A, E, G, M, P, R, S failures board or FAN	Information from the T board (continuous)
6	communication system failure	IC3 of M1 board	Loop back test (power on) Communication error detection (continuous)
5	serial DAC failure	M1 ↔ IC24 of B board, IC3 of S board, M2B, M2C of M2 board	Send test data (power on)
4	EEPROM data failure	IC7, 8 of M1 board	SAM(sequential access method) (power on) Check test
3	RAM operation failure	IC5, 6 of M1 board, IC9~15 of M2 board	Write and Read out test (power on)
2	EPROM data failure	IC4 of M1 board	SAM(sequential access method) (power on) Check test
1	_____	_____	_____
0	no error	_____	_____

Note : If there is a malfunction, the number corresponding to the malfunction will flash every two seconds.

Fig. 65. Failure Indication of 7 Segment Display

3-12. M2 BOARD

The M2 board generates picture distortion compensation signals for the deflection system, and also compensation signals for accurate adjustment of convergence and focus. The amplitude and waveform of the output signals change according to the digital data transmitted from the M1 board. The M2 board can be broadly divided into four circuit blocks: (1) digital function generator block composed of 7 HICs to create compensation signals, (2) M2A board, which generates DC and vertical period reference signals, (3) M2B and M2C boards, which produce multiple and varied voltage outputs from the reference signal, (4) Mixer block, which mixes various signal voltages from the M2A, B and C boards and outputs the resulting signal.

3-12-1. Digital Function Generator Block

This is an arbitrary waveform generation circuit composed of memory (RAM) and a high-speed D/A converter. It is equivalent to the D/A converter block of the digital conver-

gence/focus system. Fig. 66 shows the built-in equalization circuit, consisting of IC9 to IC15 (SBX-1572). The address and data lines, having a common bus structure, are connected to the M1 board through a buffer (IC5 to IC7). Data write to each IC memory is controlled by the CS (Chip Select) and WR (Write) signals. When detectors IC3 and IC4 select the "LOW" output line simultaneously, memory write is enabled. As for data read, data from the address designated by the memory selected by the IC3 output (CS signal) can be read when the common RD (read) signal is "L". When power is turned on, IC9 to IC15 are set to write mode, and data is transferred from the M1 board and written in to RAM.

Next, the ICs are switched to the read mode. When a regular address signal from the address counter of M1 is received, the RAM data is converted into continuous analog signals by the D/A converter. It is then output from IC17, 19, 27 and 28 as a voltage waveform. IC21 and IC18 form a sample-and-hold circuit to remove D/A converter glitch noise.

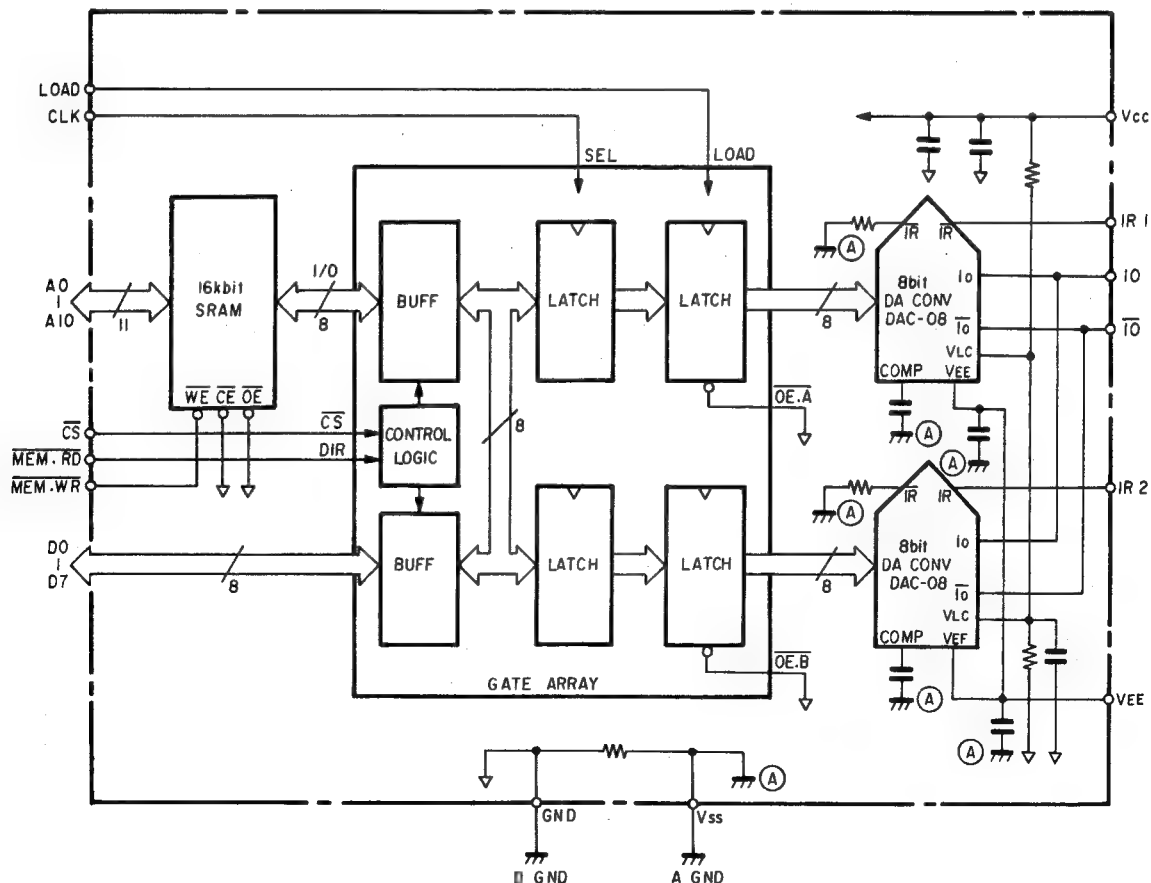


Fig. 66. SBX-1572 Equalization Circuit

3-12-2. Reference Signal Generator (M2A board)

The M2A board generates the vertical period reference waveform and the reference voltage used as an input for the digital attenuator. The vertical drive pulse (VD) sent from the E board is input to pin ③ of the M2A board. Then it passes through the Q7 inverting buffer and it is output from pin ⑨ (VD). IC1 (1/2) and Q1 form a Miller integrator circuit that generates a zero-cross vertical sawtooth wave from the reference voltage D1. Both positive and negative peaks of this wave are kept constant by the AGC circuit composed of IC1 (2/2) and IC2 (2/2). IC3 (2/2) works as a comparator which produces a square wave (V.SQR) from the V.SAW

waveform.

The Miller integrator composed of IC2 (1/2) and Q2 generates a vertical parabolic wave (V.PARA), which is delivered to the two peak-clamp circuits Q3/Q4 and Q5/Q6. Q3/Q4 clamps the V.PARA wave so that at its peak it equals the level of the reference voltage DC2, and Q5/Q6 does likewise so that the minimum level equals ground potential. The wave is then output from both circuits. IC3 (1/2) superimposes the reference voltage DC1 to the V. SAW waveform and outputs the resulting signal. Fig. 67 shows the voltage waveforms output from the M2A board.

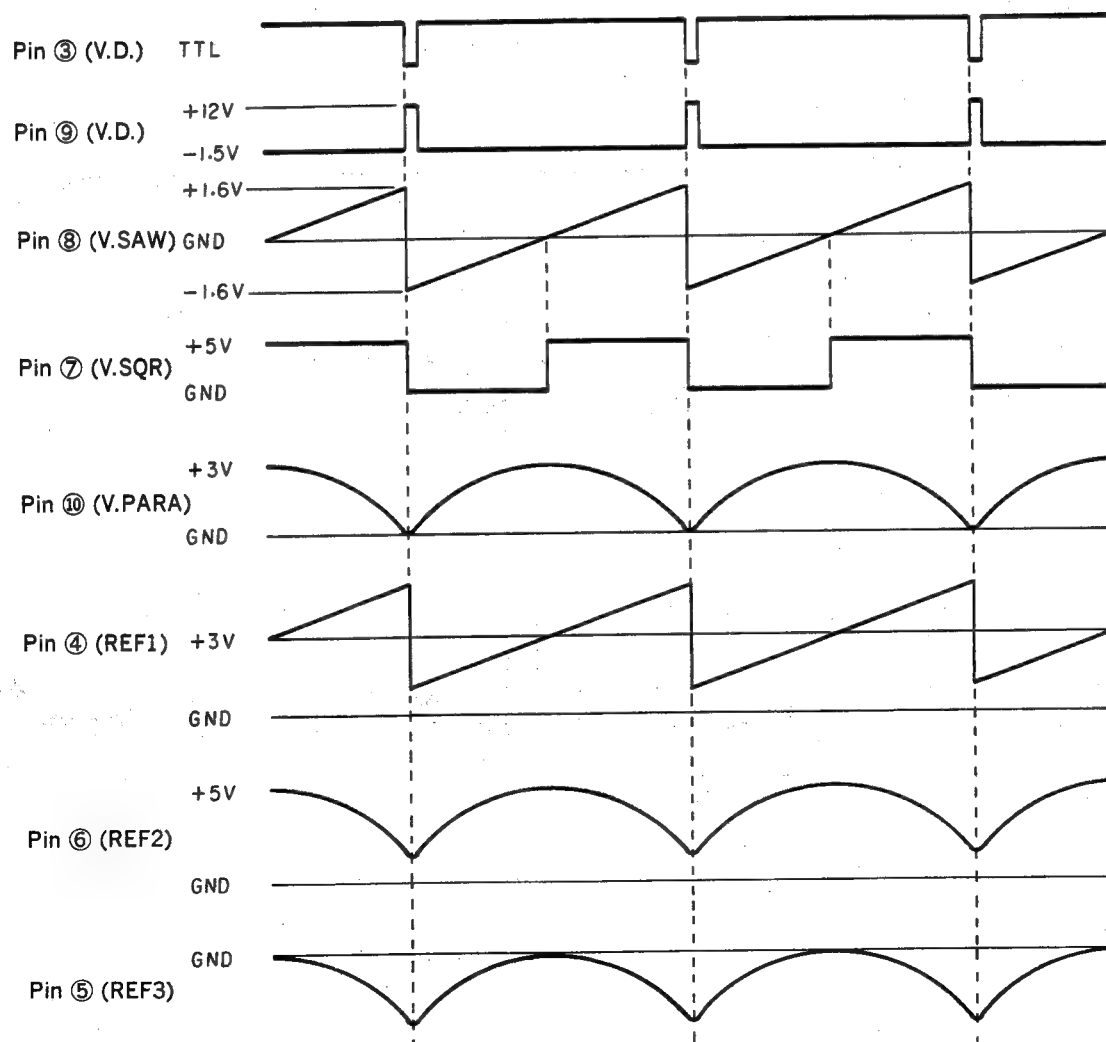


Fig. 67. M2A Board Output Waveform

3-12-3. Digital Attenuator Block (M2B and M2C boards)

The M2B and M2C boards form a digital attenuator composed of an 8-bit serial D/A converter and an operation amplifier. Each of them is provided with several common analog input terminals and 16 independent output terminals. The M2B board uses the stable reference voltage DC3 (2.5 V_{DC}) as an input.

It outputs, through the adder composed of IC3 to IC6, the voltage obtained by multiplying the DC3 voltage by the digital value at IC1/IC2. The direct current DC3 from the AI terminal (pin ②) and the BI terminal (pin ⑨) is applied to the ⊖ side of each channel's adder. This causes the output voltage of the operation amplifier to change within the -2.5 V_{DC} (data: 00h) to +2.5 V_{DC} (data: FFh) range. There are 16 output channels. A01 to A07 are used for deflection system control, and B01 to B04 for static convergence adjustment. The other terminals are open.

The M2C board has been given a different structure from the M2B board in order to make the AC signal (vertical period

waveform) variable. Fig. 68 illustrates operation of the M2C board. The reference waveform REF2 input at the VRA terminal is multiplied by the digital value (d) at IC1, and sent to IC3 (or IC4). The centerclamped voltage waveform REF3 is input at the AI terminal. It is then input to the ⊖ terminal of IC3 (or IC4) and mixed with the IC1 output voltage. The resulting voltage ($2d \cdot V_{REF2} - V_{REF3}$) is applied to the ⊖ terminal of IC5 (or IC6) and inverted. The DC voltage ($d \cdot DC2$) attenuated by IC2 is applied to the ⊕ terminal of IC5 (or IC6). The voltage resulting from the formula below is then obtained at the B0 output terminal. $V_{B0} = 2d \cdot DC2 - (2d \cdot V_{REF2} - V_{REF3}) = V_{REF3} + 2d (DC2 - V_{REF2})$

The REF2 voltage is generated so that it reaches a level equal to the DC2 voltage at its peak (center). The composite voltage ($DC2 - V_{REF2}$) matches the negative V_{REF3} . Therefore, it can be expressed that $V_{B0} = V_{REF3} - 2d V_{REF3} = (1 - 2d) V_{REF3}$, and V_{B0} will change within the V_{REF3} to $-V_{REF3}$ range when the digital value fluctuates between 0 and 1.

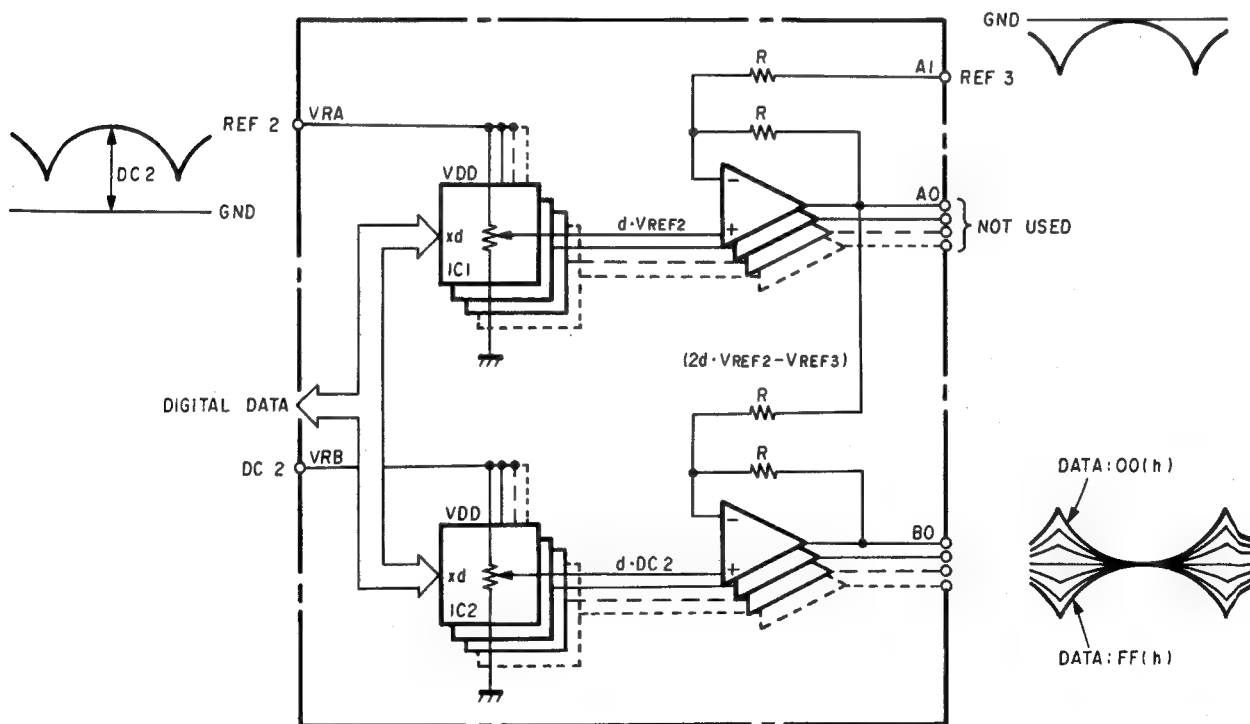
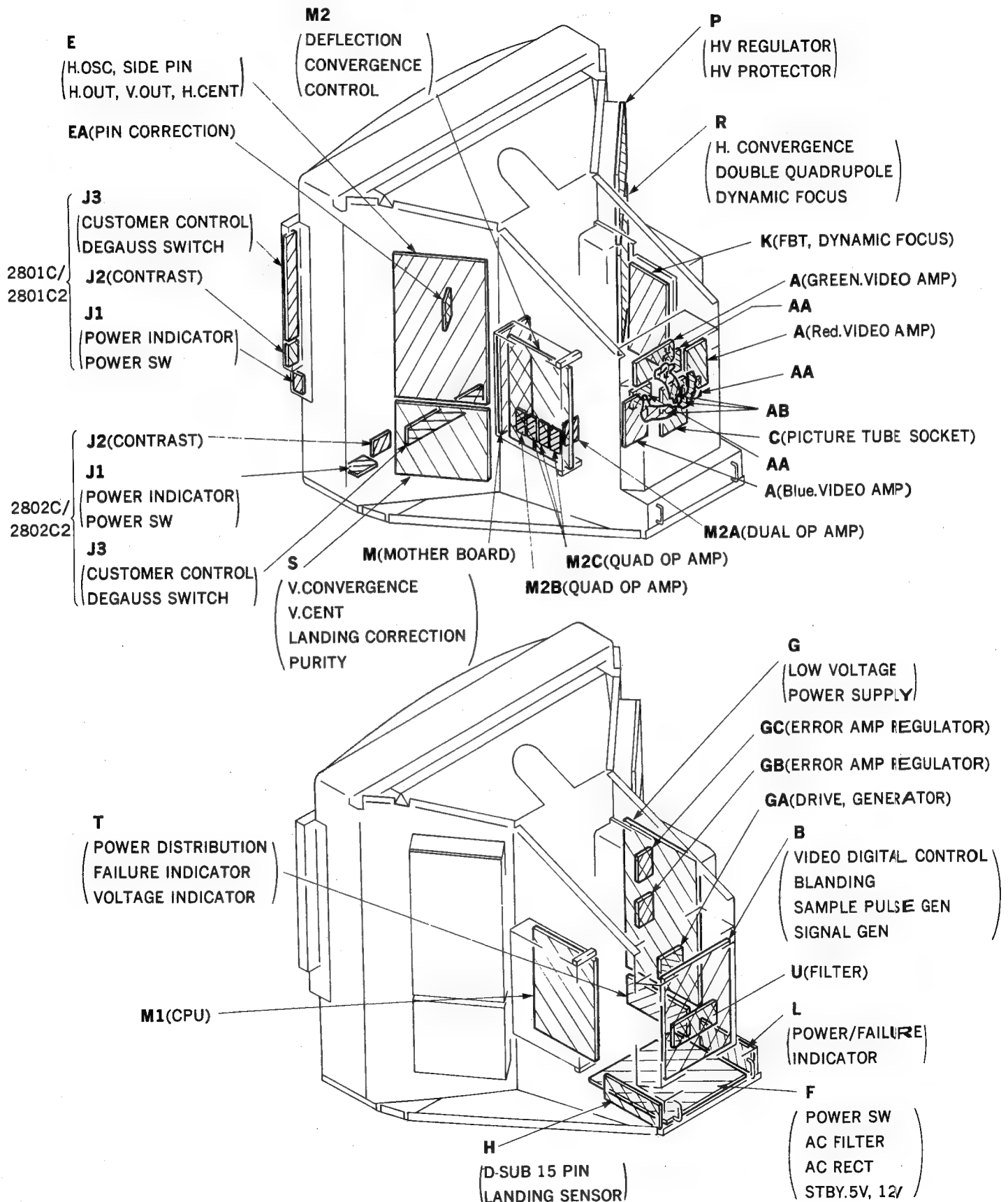


Fig. 68. Example for M2C Board Operation

SECTION 4 ADJUSTMENT

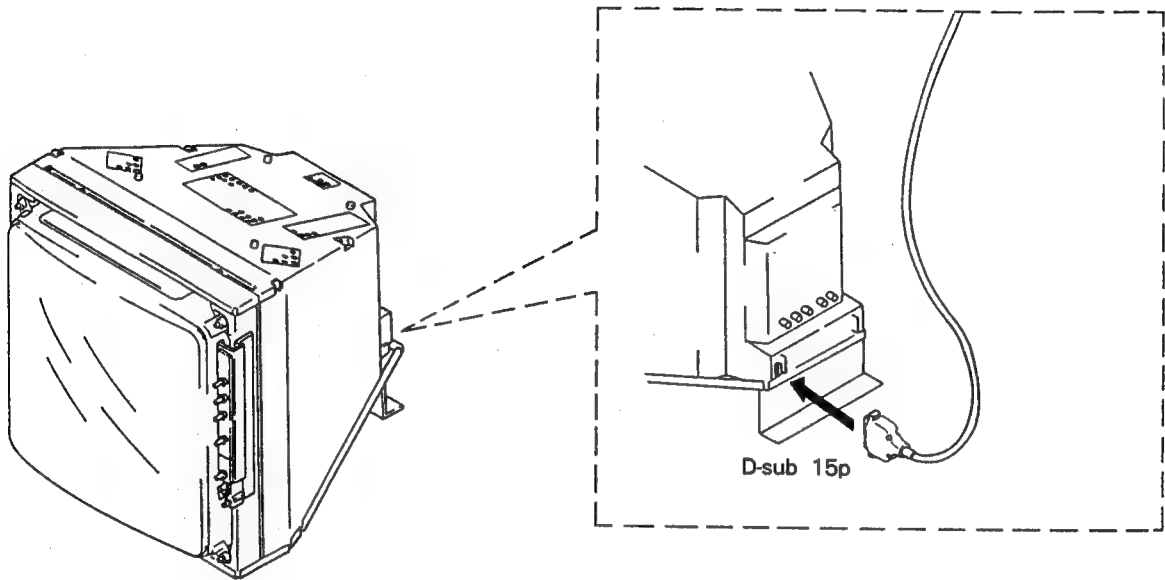
4-1. CIRCUIT BOARDS LOCATION



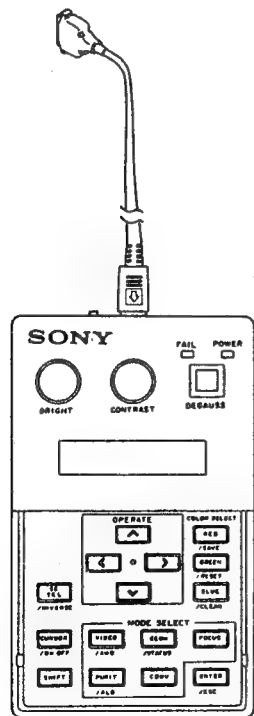
4-2. EQUIPMENT SET-UP PROCEDURE

4-2-1. Connections Diagram

Connect the optional remote controller (DDM-RM10) to the main unit as shown below, and adjust each control.



Connect to Main Unit



REMOTE CONTROLLER
DDM-RM10

4-2-2. Adjusting Method Using a Remote Controller

Description and Operation of Each Part

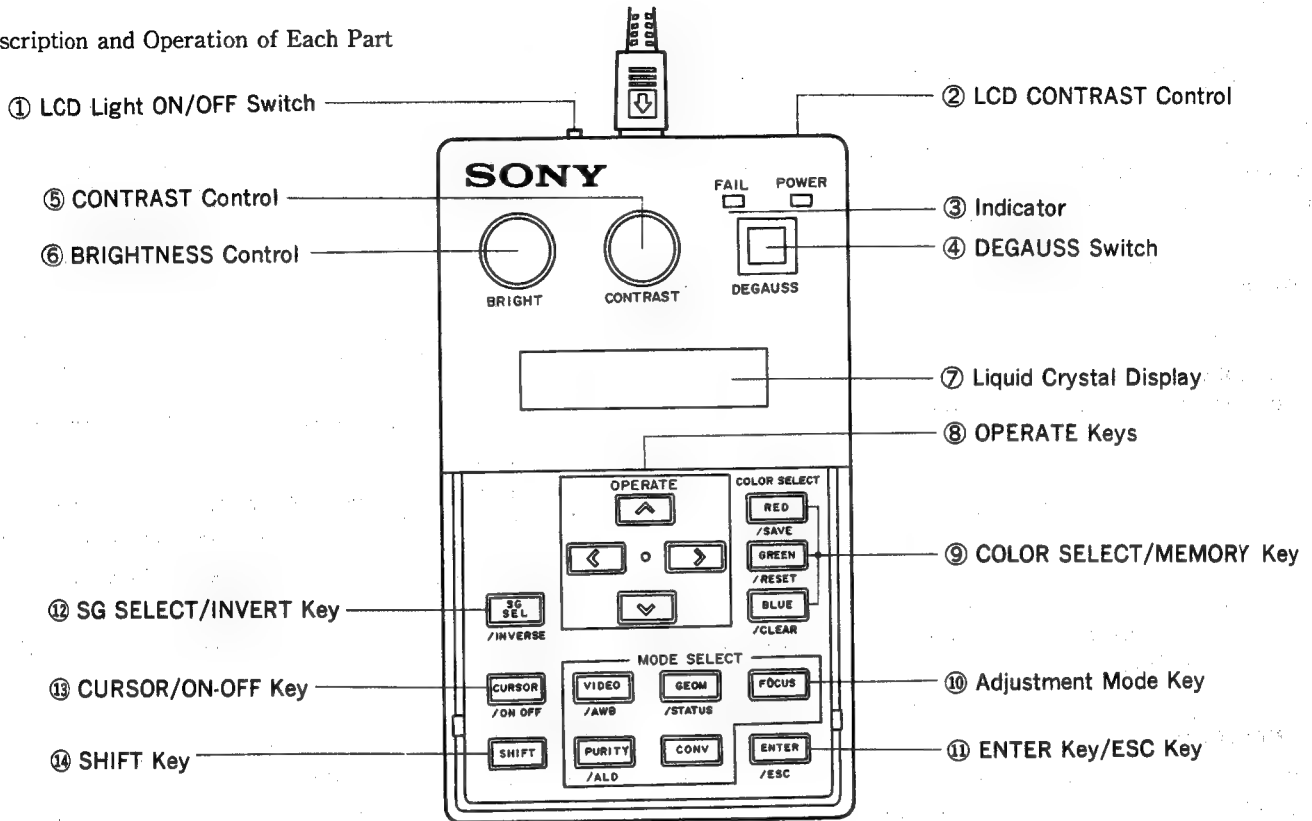


Fig. 1

① LCD Light ON/OFF Switch

This switch has a lighting function for ease of operation in dark places.

When this switch is pressed, the liquid crystal display backlight is illuminated.

Press it again to turn the light off.

When power is turned on, the liquid crystal display backlight is illuminated automatically.

② LCD CONTRAST Control

Used to adjust the contrast of characters on the liquid crystal display.

③ Indicators

POWER(Green)

Lights up when +5V power is supplied to the remote control unit.

FAILURE(Red)

Lights up when a failure has occurred in the remote controller. When the main unit fails, the light blinks on and off.

④ DEGAUSS Switch

Applies degaussing for approximately 8 seconds when pressed.

⑤ CONTRAST Control

Used to adjust the screen contrast.

⑥ BRIGHTNESS Control

Used to adjust brightness of the black level. It is provided with a center click indicating the mid-point.

⑦ Liquid Crystal Display

Displays messages related to adjustment mode, menu, test pattern, preset, adjustment data and operating procedure.

⑧ OPERATE Keys

Used for selecting the adjustment menu, changing the adjustment data, and controlling the cursor control, etc.

⑨ COLOR SELECT/MEMORY Keys

Red, green and blue colors can be independently turned ON or OFF.

When these keys are used while holding the **SHIFT** key down, memory function modes such as **SAVE**, **CLEAR**, and **RESET** can be selected.

DDM-2801C/2802C DDM-2801C2/2802C2

⑩ MODE SELECT Keys

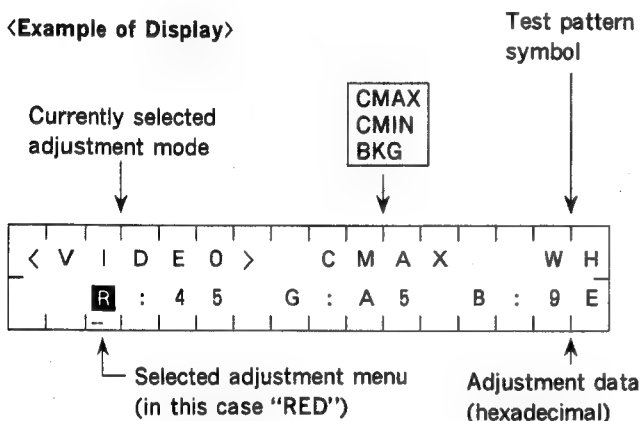
Used to select a desired adjustment mode. There are the following adjustment modes available :

VIDEO

This key is used to adjust the white balance. While holding the **SHIFT** key press the OPERATE keys (**◀**, **▶**) to specify the adjustment option.

Use the OPERATE keys to move data up and down. The test pattern is automatically set to WH (white) when the equipment is placed into the VIDEO mode. (Test pattern menu ⑫)

<Example of Display>

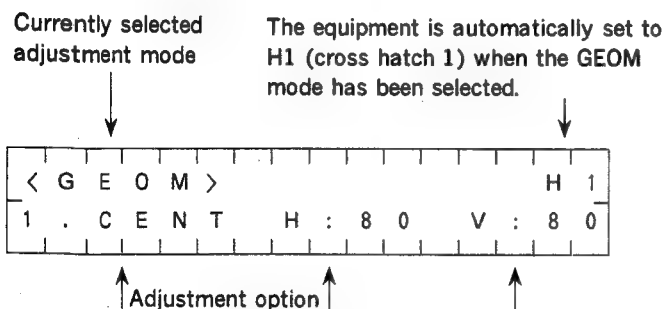


GEOM (Geometric)

Used to adjust any geometric distortion of the image. Press **SHIFT** + (**◀**, **▶**) to specify the desired adjustment option.

Use the OPERATE keys to manipulate the image.

<Example of Display>



1. CENT
2. SIZE
3. H.KEYSTONE
4. H.PIN
5. H.PHASE
6. H.SKEW
7. Y.BOW
8. V.LINEARITY
9. V.LIN.BAL
10. T/B PIN
11. X.BOW
12. T/B BAL
13. T/B KEYS
14. T/B SKEW

Note : When marking adjustments using either option 1. (CENT) or 2.(SIZE), use all four OPERATE keys.

With all other options, use the appropriate two OPERATE keys.

Horizontal : (**◀**, **▶**)

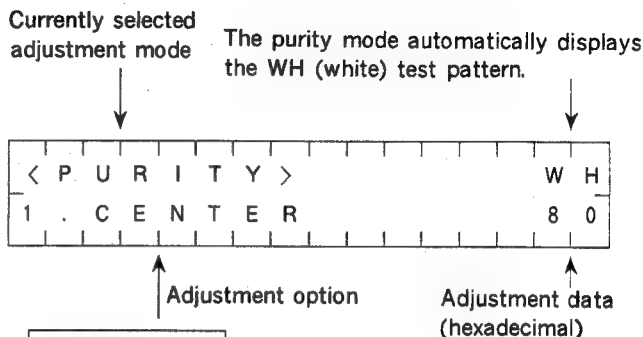
Vertical : (**▲**, **▼**)

PURITY

Used to adjust the landing.

Press the OPERATE keys (**◀**, **▶**) to specify the desired adjustment option while holding the **SHIFT** key. Move the data up and down using the OPERATE keys.

<Example of Display>



1. CENTER
2. TOP CENTER
3. BTM CENTER
4. TOP RIGHT
5. BTM RIGHT
6. TOP LEFT
7. BTM LEFT

Note : When making the landing adjustment with Red, Green, or Blue, press the COLOR SELECT key to select the desired color and make adjustments using the OPERATE keys.

FOCUS

Used to make focus adjustment.

After entering the focus adjustment mode, press the **FOCUS** key to select COAR1, COAR2 or FINE. Use the OPERATE key, pressing the OPERATE key and **SHIFT** key, and adjust the focus.

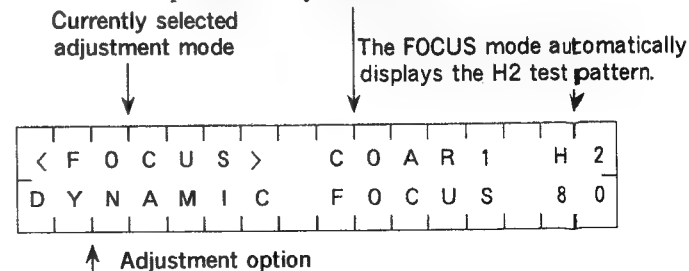
To move an adjusting point (cursor), proceed by referring to the method of operating the ⑬ **CURSOR** key.

Note : In the COAR1 and COAR2 mode, COAR1 turns to the cursor automatic mode, and COAR2 turns to the cursor manual mode.

<Example of Display>

COAR1, COAR2 : 5×5 point coarse adjustment mode

FINE : 17×17 point fine adjustment mode



DYNAMIC FOCUS : OPERATE keys (**▼**, **▲**, **◀**, **▶**).
SPOT AXIS : **SHIFT** + OPERATE keys (**▼**, **▲**).
SPOT DIAGNL : **SHIFT** + OPERATE keys (**◀**, **▶**).

CONV

After entering the convergence adjustment mode, press the **CONV** key to select COAR1, COAR2 or FINE.

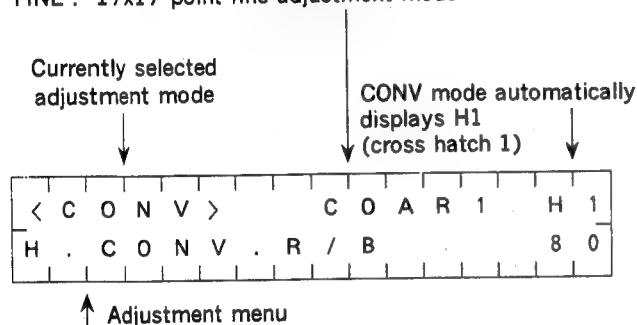
Use **SHIFT** and OPERATE keys as shown in the example below to correct misconvergence.

To move an adjusting point, proceed by referring to the method of operating the ⑬ **CURSOR** key.

Note: In the COAR1 and COAR2 mode, COAR1 turns to the cursor automatic mode, and COAR2 turns to the cursor manual mode.

<Example of Display>

COAR1, COAR2 : 5x5 point coarse adjustment mode
FINE : 17x17 point fine adjustment mode



- H. CONV R/B: OPERATE keys (**←**, **→**).
- H. CONV B: **SHIFT** + OPERATE keys (**←**, **→**).
- V. CONV R/B: OPERATE keys (**↓**, **↑**).
- V. CONV B: **SHIFT** + OPERATE keys (**↓**, **↑**).

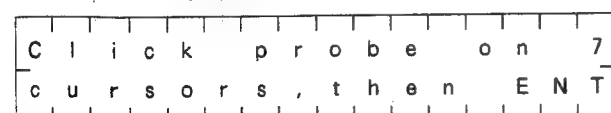
• /ALD (Auto Landing)

ALD is used to adjust the landing.

Press the **PURITY** key while holding down the **SHIFT** key. Next, press the **ENTER** key.

Perform this adjustment with the optional LS-10 landing sensor.

<Example of Display>



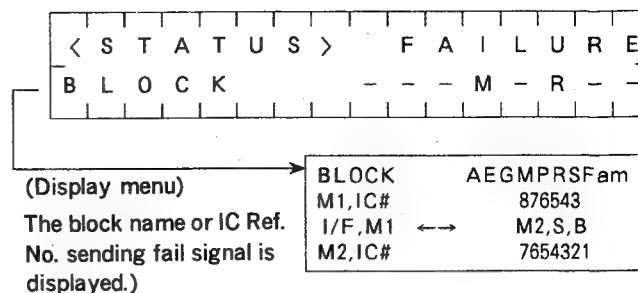
Place the landing sensor on the face of the monitor directly above each other seven on-screen cursors which will automatically appear in succession. When a pure green field has been obtained, press the **ENTER** key, else click the sensor once more and repeat the process. Use the **ESC** key to exit the ALD mode at any time.

• /STATUS

Used to check the operational status (pass/fail) of the main unit.

Press the **GEOM** key to display the status information of the monitor while holding the **SHIFT** key. To feed the menu, press the OPERATE keys (**←**, **→**). When returning to the adjustment mode, press the **ENTER** key.

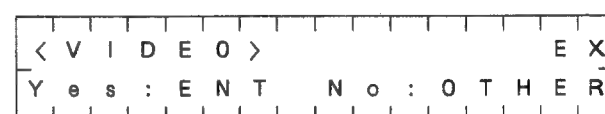
<Example of Display>



⑬ ENTER Key

Used to execute the adjustment mode and the memory function mode. When a mode is displayed, it is necessary to press the **ENTER** key in order to execute that mode.

<Example of Display>



When operating the mode, press the **ENTER** key, or otherwise, press other key.

• /ESC (Escape)

Use this function when adjustment becomes impossible or if you are not sure of the proper adjustment procedure. When **ENTER** is pressed while **SHIFT** is held down the remote controller resets to initial state.

⑭ SG SEL Key

Used for switching the built-in test pattern signal. It can also be used to select the signal supplied from an external device. Press the **SG SEL** key to sequentially display the test patterns. In the adjustment mode the test pattern symbol is indicated in the upper right corner of the LCD display.

• /INVERSE

This gives an inverting signal to the built-in test pattern which can be used in the INVERT mode. Press the **SG SEL** key while holding the **SHIFT** key.

H1 (Crosshatch)	↔	h1 (Cosshatch 1 inverting)
D1 (Dot 1)	↔	d1 (Dot 1 inverting)
H2 (Crosshatch 2)	↔	h2 (Cosshatch 2 inverting)
D2 (Dot 2)	↔	d2 (Dot 2 inverting)
WH (White)	↔	BL (Black)
BL (Black)	↔	WH (White)
GR (Gray)		Do not exist
EX (External signal)		Do not exist

⑬ **CURSOR** key

Used to move adjustment point.

To move adjusting points press one of the OPERATE keys (**◀**, **▶**, **▲**, **▼**) while holding down the **CURSOR** key.

In the focus and convergence COAR1 modes the adjusting points will move automatically each time the **CURSOR** key is pressed.

For the order of movement refer to page 75.

• **/CURSOR ON-OFF**

Press the desired mode key while holding this key when selecting the memory function mode, signal inverting, cursor display ON/OFF, ALD, etc.

⑭ **SHIFT** key

Used to turn the cursor display ON and OFF.

Press the **CURSOR** key while holding the **SHIFT** key.

◀Memory Function Operating Procedure▶

The functions such as memory, resetting and clearing of the data controlled in each adjustment mode are described below.

• **/SAVE Key :**

Used to save the currently adjusted data (RAM → EEPROM) in the main unit (DDM).

To do this, press the color select mode **RED** key while holding the **SHIFT** key. By this operation the data of each adjustment mode is saved simultaneously. After saving, the information on the display will be as shown below in Example of Display.

Note : This operation must be performed individually for each adjustment mode. For example, when adjusting white balance in the VIDEO mode, save the data before moving on to another mode.

◀Example of Display▶

<	V	I	D	E	O	>													
S	e	l	e	c	t		n	e	x	t		M	O	D	E				

↑
Save completed message

• **/CLEAR Key :**

The currently adjusted data is cleared, and the function of the mode is placed in the non-compensation state.

Press the color select mode **BLUE** key while holding the **SHIFT** key.

After clearing, the display will be as shown below for about two seconds, and then the display will return to the previous adjustment mode.

◀Example of Display▶

<	V	I	D	E	O	>													
C	L	E	A	R			C	O	M	P	L	E	T	E	D				

Note : In the FOCUS and CONV modes, the clear function is performed under each adjustment. Therefore, the desired adjustment option must be specified by pressing the OPERATE keys (**◀**, **▶**) before executing the clear operation.

To clear all data for each adjustment mode, select "ALL DATA" in the mode. After executing the clear operation, the display becomes the same as for other modes. And after about 2 seconds, the display automatically returns to the adjustment mode it was before executing the clear operation.

◀Example of Display▶

Adjustment menu to clear

S	P	O	T		A	X	I	S											
Y	e	s	:	E	N	T		N	e	x	t	:	>						

• **/RESET Key :**

Used to reset the currently adjusted data (EEPROM → RAM) in the monitor.

Press the color select mode **GREEN** key while holding the **SHIFT** key.

This is used for restoring the original condition after clearing the data.

Note : In the FOCUS and CONV modes, the adjustment option to be reset must be specified before executing the reset operation by pressing the OPERATE keys (**◀**, **▶**). Select "ALL DATA" to reset all adjustment options.

4-3. INSTALLATION ADJUSTMENT

Perform if magnetic influence caused by changing the installation place affects the display adjustment as follows.

- Landing adjustment....Refer to page 77.
- V.CENT and H.CENT adjustments....Adjust the control on the front panel.
- ConvergenceRefer to page 78.
- Picture distortion adjustments....Refer to page 84.

4-4. ADJUSTMENT AFTER REPLACING THE CRT

After replacing the CRT, be sure to perform the following adjustments.

1. Landing adjustmentRefer to page 77
2. Convergence adjustment.....Refer to page 78
3. Focus adjustment (Beam spot adjustment)
.....Refer to page 81
4. Screen voltage adjustment.....Refer to page 82
5. White balance adjustmentRefer to page 82
6. Picture distortionRefer to page 84
7. H STAT VR adjustmentRefer to page 87

Note : The neck assembly (deflection yoke, alignment coil, alignment magnet) is assembled together with the CRT and is supplied as a component with preadjusted CRT characteristics.
Consequently, it is not necessary to perform the neck assembly parts adjustment.

[Deflection Yoke Installing Method and Adjustment]

In case the neck assembly has moved, perform the following adjustment.

- (1) Set the BRIGHT control to the center click position and the CONTRAST control to maximum. Turn on the power and warm up the unit for about 30 minutes or more while displaying green on the screen.
- (2) Push and bring the deflection yoke into contact with the CRT completely.

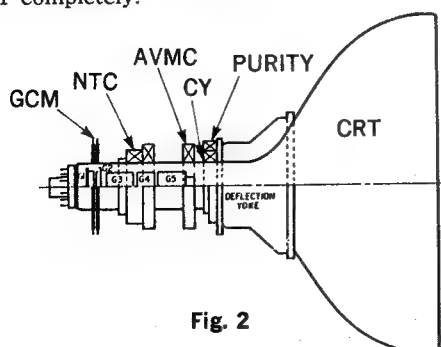


Fig. 2

- (3) Confirm that the neck assembly is installed as shown in the Fig. 2.
- (4) Select the PURITY key in the adjustment mode.
- (5) Display the cursor on the center of the screen and turn on the degauss switch of the remote controller.
- (6) Set to green only using the R,G,B keys of the remote controller, and adjust with the (◀, ▶) keys so that green is in the center of the screen. (Fig. 3)

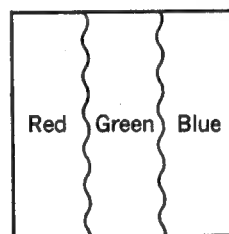


Fig. 3

- (7) Back out the deflection yoke slowly and stop when a uniform green is achieved on the screen.
- (8) Next, set to red only.
- (9) Perform the adjustment for a uniform red on the screen using the (◀, ▶) keys.
- (10) Similarly perform adjustment for uniform blue on the screen using the (◀, ▶) keys.
- (11) Confirm that the landing of red, green and blue is correctly adjusted. If mislanding is observed, repeat steps (5) through (10) again.
- (12) Tighten the deflection yoke. (Fig. 4)
- (13) If the vertical convergence is not adjusted correctly on the X-axis, tilt the deflection yoke and insert the wedge-shaped deflection yoke spacer. (Fig. 4)

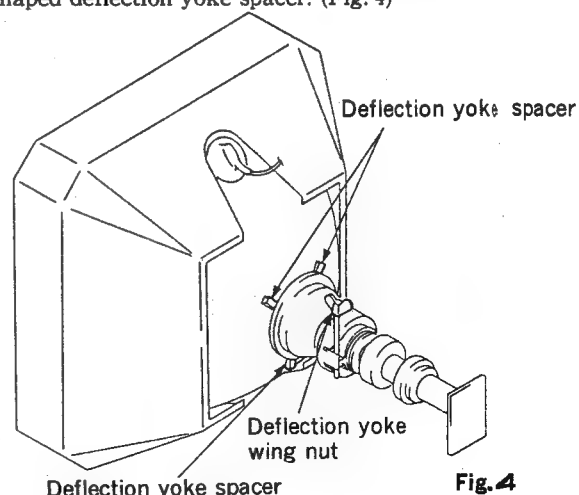


Fig. 4

- (14) Confirm that the raster is not tilted.

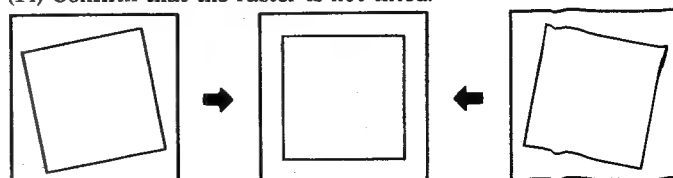


Fig. 5

4-5. ADJUSTMENT AFTER REPLACING A BLOCK

After replacing the following blocks, be sure to perform the adjustments and/or checks as shown below.

Replaced Block	Required Adjustment or Checks	Reference Page
A board	• White balance adjustment	See page 82
B board		
E board	• Picture distortion adjustment (H.SIZE adjustment) (H CENT adjustment)	See page 84
G board	• Output voltage checks	Safety related adjustment (See page 88)
M1 board	• Adjustment after replacing the CRT (Note)	Safety related adjustment (See page 75)
P board	• High voltage adjustment	Safety related adjustment (See page 87)
R board	• H STAT VR adjustment • H direction convergence adjustment • FOCUS, AQP, DQP adjustment	See page 87 See page 79 See page 81
S board	• V direction convergence adjustment • Landing adjustment	See page 80 See page 77
HV Block	• High voltage adjustment • H.STAT VR adjustment	Safety related adjustment (See page 88) See page 87

Note : New M1 boards have no adjustment data in their EEPROM.

Therefore, readjustment is necessary following the procedures detailed under "ADJUSTMENT AFTER REPLACING THE CRT".

If the EEPROM from the previous board is remounted onto a new M1 board at the same time, readjusting is not required.

4-6. ADJUSTMENT

4-6-1. LANDING ADJUSTMENT

• Check raster center

1. Select Cross hatch 1 mode by the **[SG SEL]** key and confirm that the horizontal position of the picture is located at the center.

Note : By switching the internal and external input signals, a difference between the signal timing may occur causing the horizontal position of the picture to deviate.

2. If it is not displayed at the center, select the CENT mode by the **[GEOM]** key in the adjustment mode and adjust with the (**[<]**, **[>]**) keys. After the adjustment, save the data.

• Select **[PURITY]** or ALD in the adjustment mode when performing the landing adjustment.

Note : When adjusting in the ALD mode, the optional landing sensor (DDM LS10) is used.

[Landing AUTO Adjustment]

1. The screen can be made all an white Pattern by using the **[SG SEL]** key, and can be change to green by the **[R]**, **[G]**, **[B]** keys.
2. Degauss the screen by pressing the DEGAUSS switch (front panel), and warm the unit up for 30 minutes or more.
3. Connect the landing sensor to the landing sensor terminal at the rear of the unit.
4. Select the ALD of the adjustment mode. At this time, the degaussing operation works automatically, so wait for about 8 seconds until it is completed.
5. Bring the landing sensor into contact with the portion where the cursor is displayed at the center of the screen and click the button on the landing sensor. The cursor will move automatically from **[1]** to **[7]** in sequence as shown in Fig.5, so repeat the adjustment seven times in the same manner.

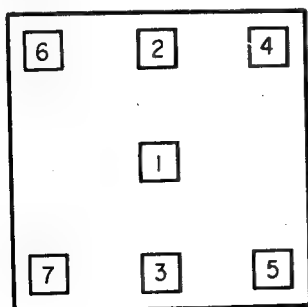


Fig. 6

6. Confirm that the screen is uniformly green.
7. Similarly confirm for red and blue.
8. If mislanding is observed, repeat steps 5 through 7 again.
9. After the adjustment, the data is saved automatically.
10. Select the I.CENT mode by GEOM adjustment mode and adjust H.CENT (horizontal centering) with the (**[<]**, **[>]**) keys.
11. After the adjustment, SAVE the data.

Note : If the landing adjustment can not be performed by AUTO adjustment, perform manual adjustment as described below.

[Manual Landing Adjustment]

1. The screen is green. Degauss by pressing the degauss switch, and warm the unit up for 30 minutes or more.
2. Select "PURITY" in the adjustment mode.
3. Move the cursor to the center of the screen.
4. Adjust green at the center of the screen (position **[1]**) with the (**[<]**, **[>]**) keys to maximum brightness.
5. While moving the cursor from **[1]** to **[7]** in sequence, perform the landing adjustment as explained above. (Fig. 7)

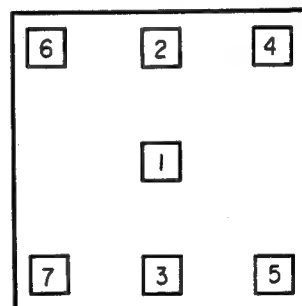


Fig. 7

6. Confirm that the screen is uniformly green.
7. Similarly confirm for red and blue.
8. After the adjustment, SAVE the data.
9. Select the CENT setting of the GEOM adjustment mode and adjust the H.CENT (horizontal centering) with the (**[<]**, **[>]**) keys.
10. After the adjustment, SAVE the data.

4-6-2. Convergence Adjustment

- Perform H.STAT VR adjustment for the HV block. (See page 84)
- There are two adjustment modes for adjusting convergence.

COARSE mode

COAR1 modecursor automatic mode 5x5 points adjustment

COAR2 modecursor manual mode 5x5 points adjustment

FINE mode17×17 points adjustment

[COARSE Adjustment]

1. Warm up the unit for 30 minutes or more.
 2. Set the H.STAT and V.STAT controls on the front panel to the center click position.
 3. Select the COAR1 OR COAR2 setting of the CONV adjustment mode.
 4. The cross hatch 1 is automatically selected.
- Note :** At this time, H.STAT and V.STAT controls on the front panel are inoperative.
5. Adjust all points in the number order indicated below (5×5 points, ①→⑫). Some points have equivalent numbers.

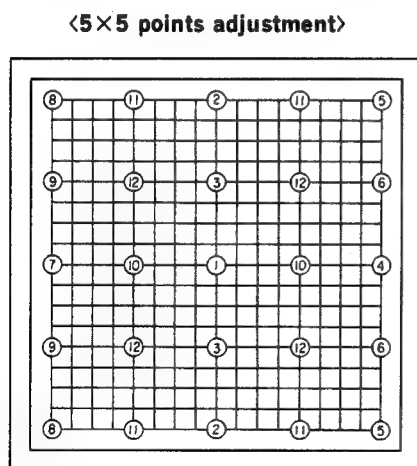


Fig. 8

6. Convergence adjustment procedure. Move the cursor in the order of ① through ⑫ and adjust the convergence at each point.
- 6-1. Move the red and blue beams symmetrically in the horizontal direction with the (◀, ▶) keys.
- 6-2. Move the red and blue beams symmetrically in the vertical direction with the (▲, ▼) keys.
- 6-3. Move the blue beam only in the horizontal direction with the [SHIFT] + (◀, ▶) keys.

- 6-4. Use the [SHIFT] + (▼, ▲) keys to simultaneously move both the red and blue beams along the center Y-axis (①, ② and ③ adjustment points) in the same vertical direction. At all other adjustment points, only the blue beam can be moved.

7. After adjustment, SAVE the data.

Note : Set the unit to another adjustment mode and confirm the convergence. When the convergence at the center of the screen deviates, adjust the H.STAT and V. STAT on the control section of the front panel.

[FINE Adjustment]

1. More than 30 minutes is required to warm up the unit.
 2. Select the FINE setting of the CONV adjustment mode.
- Note :** Set H.STAT and V.STAT on the front control section to the center click position.
3. Any intersection (17×17 points) of the cross hatch can be used for adjustment.

Note : It is desirable to perform the adjustment mostly in COARSE mode, using the FINE mode for minute adjustment only.

<Convergence Movement in FINE Adjustment>

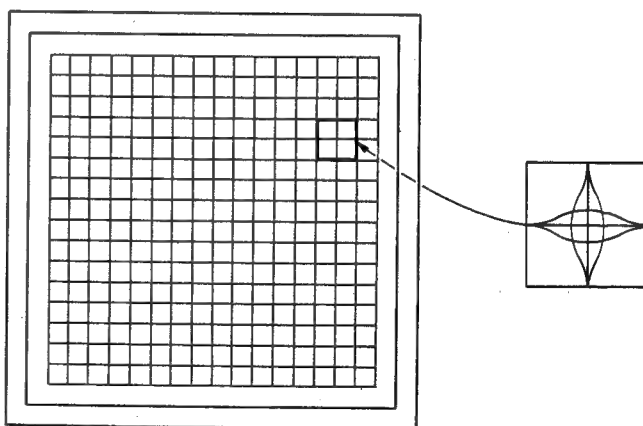


Fig. 9

4. After adjustment, SAVE the data.

Note : H.STAT and V.STAT user controls do not operate in the CONV adjustment mode.

〈Convergence Movement at Each Point in the Horizontal Direction〉

〈5×5 point adjustment〉

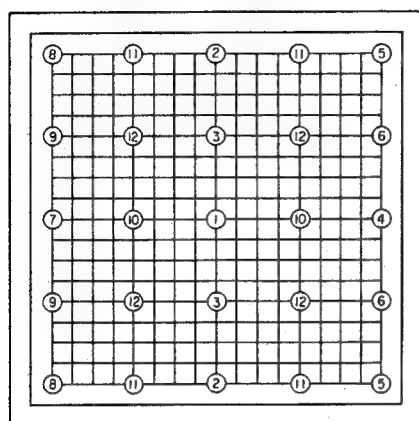
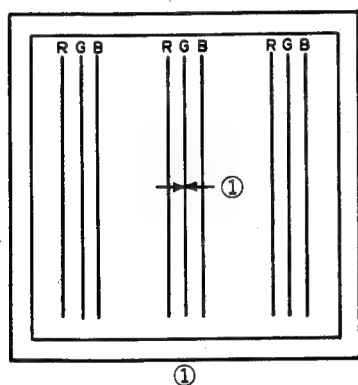
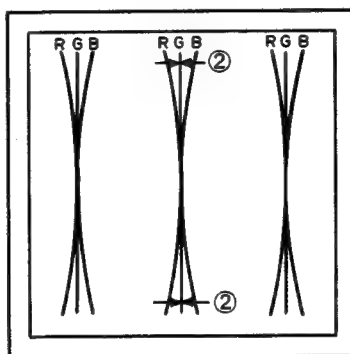


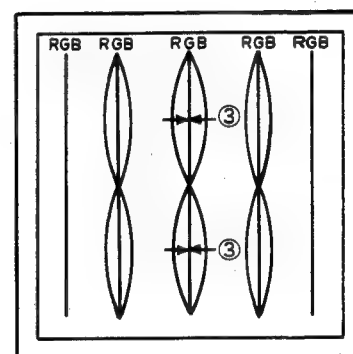
Fig. 10



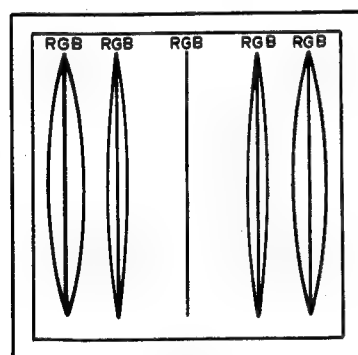
①



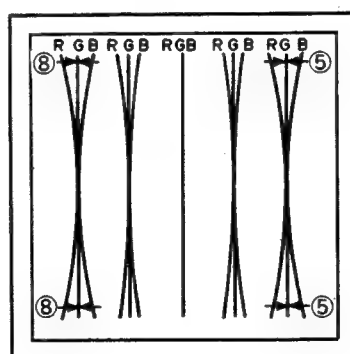
②



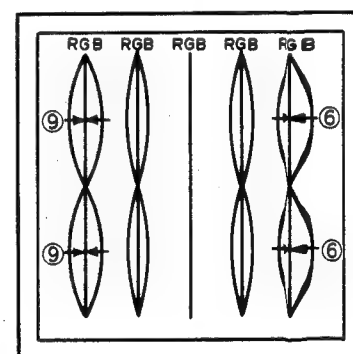
③



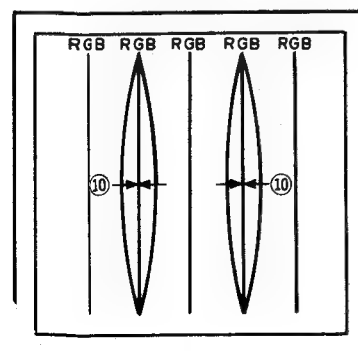
⑦ ④



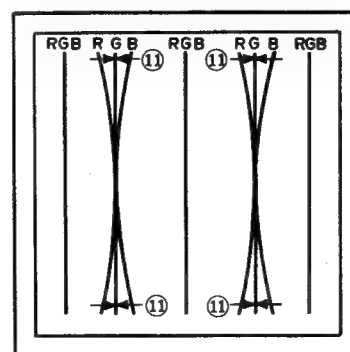
⑧ ⑤



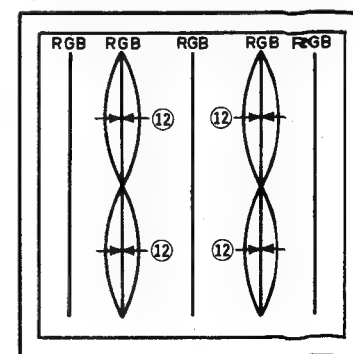
⑨ ⑥



⑩



⑪



⑫

Fig. 11

<Convergence Movement of Each Point in the Vertical Direction>

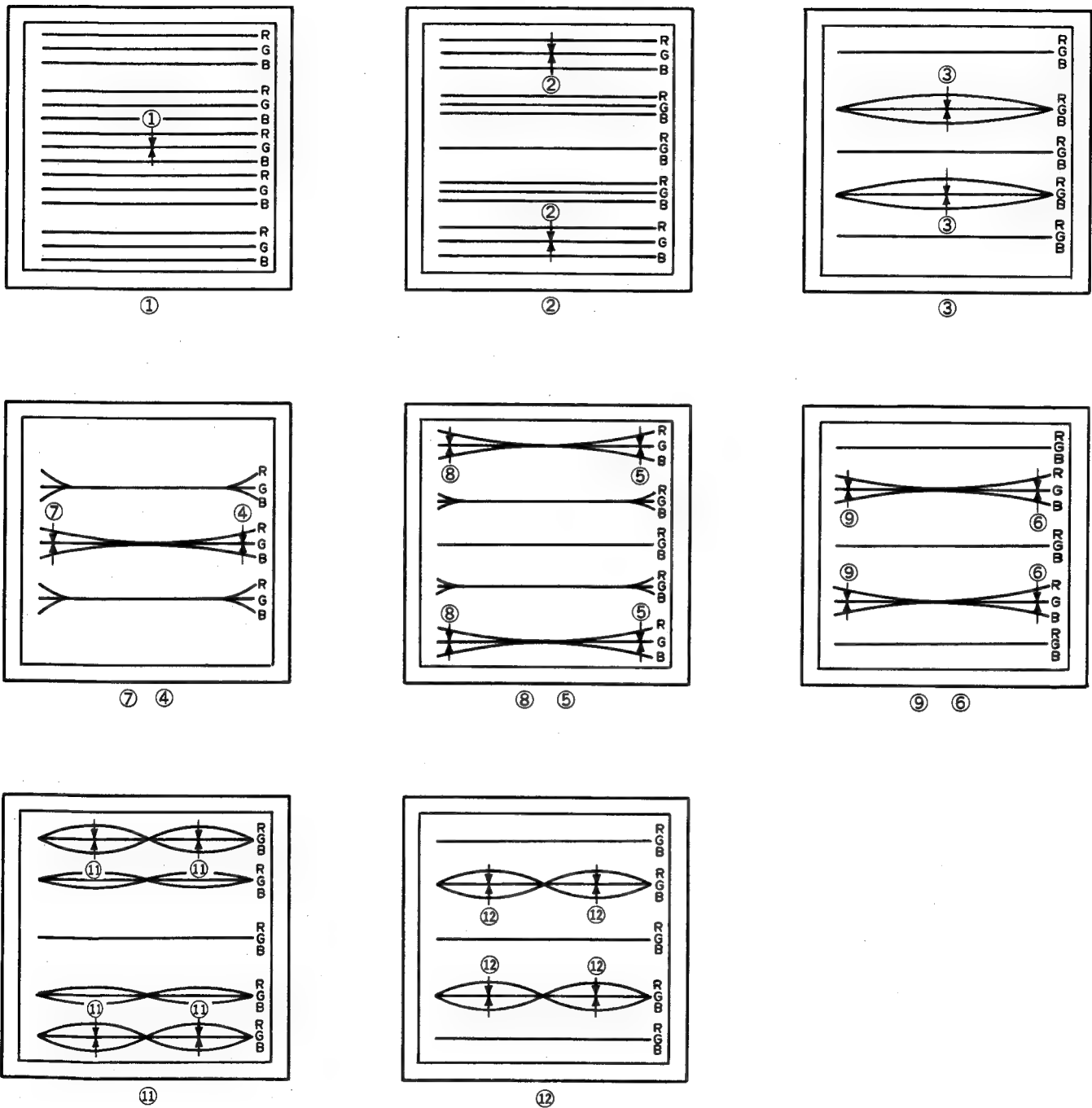


Fig. 12

4-6-3. Focus Adjustment

- There are two focus adjustment methods:

COARSE mode

COAR1 modecursor automatic mode 5×5 points adjustment

COAR2 modecursor manual mode 5×5 points adjustment

FINE mode17×17 points adjustment

- Contents of the adjustment:

1. FOCUS:
CRT's focus voltage adjustment: $\left[\leftarrow \right]$, $\left[\rightarrow \right]$
2. AQP (Axis Quadrupole):
Axial beam spot shape: $\left[\text{SHIFT} \right] + \left[\uparrow \right]$, $\left[\downarrow \right]$
3. DQP (Diagonal Quadrupole):
Diagonal beam spot shape: $\left[\text{SHIFT} \right] + \left[\leftarrow \right]$, $\left[\rightarrow \right]$

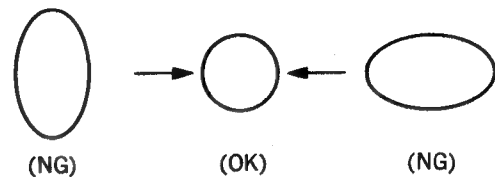
[Coarse Adjustment]

1. Select the COAR1 or COAR2 setting of the FOCUS adjustment mode.
2. Cross hatch 2 and Dot 2 modes are automatically selected by pressing the $\left[\text{SG SEL} \right]$ key.
3. The allocation of adjustment points (5×5 points) and the adjustment sequence (① to ⑫) are shown in the figure below.

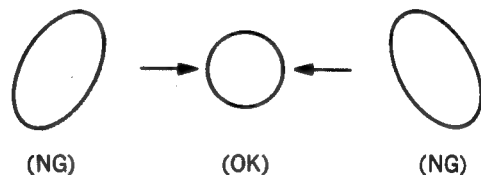
Note: Display the cursor if necessary.

1. If too much data is stored at one point, it may be difficult to adjust adjacent points.
2. At point ①, move the focus voltage range over a wide area, and observe the other points.
 - For points which pass through good focus and beam shape FOCUS adjustment only is required.
 - For points which do not show good beam shape at best focus position AQP and/or DQP adjustment is required in conjunction with focus.
4. Do not adjust the focus at one time. Perform the focus adjustment gradually in 2 or 3 steps.

5. Perform focus voltage adjustment gradually in the ① to ⑫ order ($\left[\leftarrow \right]$, $\left[\rightarrow \right]$).
6. Perform AQP adjustment in the ① to ⑫ order to compensate for the beam spot shape.



7. Perform DQP adjustment in the ① to ⑫ order to compensate for the beam spot shape.



8. Be sure to perform adjustment of steps 5 to 7 while adjusting the tracking.
9. After adjustment, SAVE the data.
10. When there are points that can not be adjusted in COAR1 or COAR2 mode, adjust in FINE adjustment mode.

[Fine Adjustment]

1. Select the FINE setting of the FOCUS adjustment mode.
2. Any intersection (17×17 points) can be used for adjustment. ($\left[\leftarrow \right]$, $\left[\rightarrow \right]$)

Note: It is best to perform the adjustment mostly in COARSE mode.

3. After the adjustment, SAVE the data.

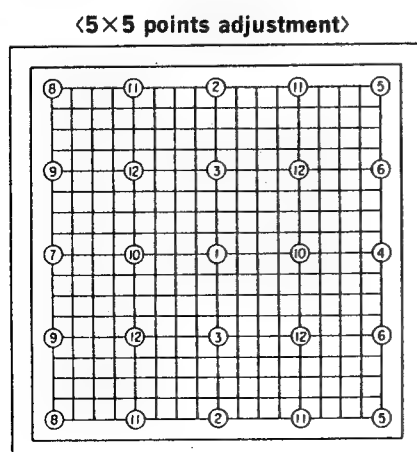


Fig. 13

4-6-4. Video Adjustment

Confirm the following items:

1. Confirm V_{GG} voltage.
 - 1-1. Confirm that TP7(VGG) of the R,G,B voltage on the A board is $10.0 \pm 0.1V_{dc}$.
 - 1-2. If the voltage is out of the specified value, adjust to $10.0 \pm 0.1V_{dc}$ with the A board RV2.
2. Confirm the Cathode Bias voltage.
 - 2-1. Select the BLACK internal signal selection mode and display an all-black signal on the screen.
 - 2-2. Connect the oscilloscope to the A1 terminal (junction with AB board) on the AA board, and confirm that the voltage is $65.0 \pm 1.0V_{dc}$.
 - 2-3. If the voltage is out of the specified value, adjust to $65.0 \pm 1.0V_{dc}$ with the A board RV1.


After confirmation of the above items, perform the black level (screen voltage) adjustment, BKG adjustment, and white balance adjustment.

Types of Adjustment


Automatic adjustment	Initial Mode	Performs the automatic adjustment so that the beam current of the black level of R,G,B channel is $0.05\mu A$, and set the contrast maximum of the white current to $280\mu A$, contrast minimum level to about $25\mu A$, and memorize this data.
	Auto Set-up Mode	Reads the backup data of the monitor, and readjusts the white level and black level of the monitor in accordance with this data.
	Measurement Memory Mode	Measures the beam current of the manually adjusted white level using the video mode, and memorizes this data.
Manual Adjustment		Adjust the level (brightness) or balance (color) in the Max. and Min. of R,G,B channel contrast.

[Screen Voltage and BKG Adjustment]

- Adjust by using the automatic adjustment and initial mode.
1. When selecting the initial mode, the monitor checks the screen voltage automatically. If it is OK, perform the BKG automatic adjustment ($\Delta I_k \cong 50nA$), and set the Min. and Max. contrast properly (uniformed current value), and save data.
 2. If the screen voltage is NG, the controller is turned to the screen volume mode automatically.

Warning! G2 high
Adj SCR N volt 

The screen voltage is too high. Turn down the screen volume (turn counter clockwise).

Warning! G2 low
Adj SCR N volt 

The screen voltage is too low. Turn up the screen volume (turn clockwise).

<AWB> G2 good
PUSH ENTER Key

Shows the screen voltage is proper.





After confirmation that the screen voltage is good, press the **ENTER** key. Then, it will return to activate 1 automatically and perform the adjustment.

For these adjustments, the G1 voltage of the channel (R,G or B) which is the deepest cut-off, is set to approximately $-35V$, and the black level current of each channel is set to approximately $0.05\mu A$.

[White Balance Adjustment]

- Perform by manual adjustment.
- Perform after screen voltage adjustment and BKG adjustment.

Input of a video signal of $0.714V_{p-p}$ from an external signal generator is required for precise brightness and color adjustment. If the external signal generator is not installed, use of the internal signal is acceptable.

1. Select VIDEO in the adjustment mode.
2. Turns to All White automatically.
3. Adjust by the color analyzer so that the color may be $x = 0.271$, $y = 0.286$, and the brightness is $Y = 90 \pm 2$ NIT, by R. CONT MAX, G.CONT MAX, B.CONT MAX, which are in the adjustment mode. (, )
4. Adjust by the color analyzer so that the color may be $x = 0.271$, $y = 0.286$, and the brightness is $Y = 6.5 \pm 0.5$ NIT, by R. CONT MIN, G.CONT MIN, B.CONT MIN, which are in the adjustment mode. (, )
5. After finishing all the adjustment (screen voltage adjustment, BKG adjustment, white balance adjustment), save the data.

Note: CONTRAST and BRIGHTNESS controls do not operate in the VIDEO mode.

[Measurement Memory Mode]

After the video adjustment, be sure to memorize the beam current condition of each R,G,B channel by the measurement memory mode of AWB. Using the all white internal signal, measure the beam current of Max. and Min. of R,G,B channel contrast, and memorize them.

1. While pressing the **[SHIFT]**, press the **[VIDEO]** (AWB).
2. Select and perform the measurement and memory mode.
3. Automatically, the data is saved.

[Auto Set-up Mode]

When the white balance and black level is distorted, caused by the gradual and slight degradation and drift of the CRT, readjustment can be performed by operating the auto setup mode of the automatic adjustment.

1. While pressing the **[SHIFT]**, press the **[VIDEO]** (AWB).
2. Select the auto setup mode.
3. Automatically, the BKG adjustment and the White balance adjustment is performed, and the data is saved.

At this time, the black level beam current of the R,G,B channels is readjusted to $0.05\mu\text{A}$, and the brightness of contrast Max. and Min. is readjusted to the beam current value which was previously memorized by the measurement memory mode.

4. When the adjustment in the auto set-up mode can not be performed, caused by the marked degradation of the CRT, the message that the adjustment of the screen voltage is not proper will appear, the same as in the operation of the initial mode. When the screen voltage is readjusted, in the same method as in section 2 [screen voltage and BKG adjustment] in accordance with the display, the auto setup mode will be automatically performed again.

Note : In the auto setup mode, be sure to record the beam current data in the measurement memory mode. Otherwise, readjustment can not be performed properly.

4-6-5. Picture Distortion Adjustment

1. Select the GEOM adjustment mode.
2. Set the V CENT control to the click position by adjusting the monitor dial. However, when Performing GEOM adjustment, only the remote controller Keys can be used.
3. Cross hatch 1 is automatically selected. Change the screen to green by **[R][G][B]** key.
4. Select the SIZE adjustment mode and adjust with the **([<],[>])** keys so that the horizontal length fits within the effective picture frame.
(Check the left and right sides of the raster.)

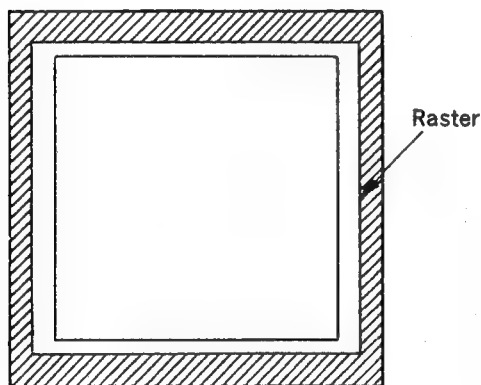


Fig. 14

5. Select the CENT adjustment mode and adjust with the **([<],[>],[^],[v])** keys so that V CENT is $c=d$ (**[^],[v]**), and H CENT is $a=b$ (**([<],[>])**) as shown in the figure below.

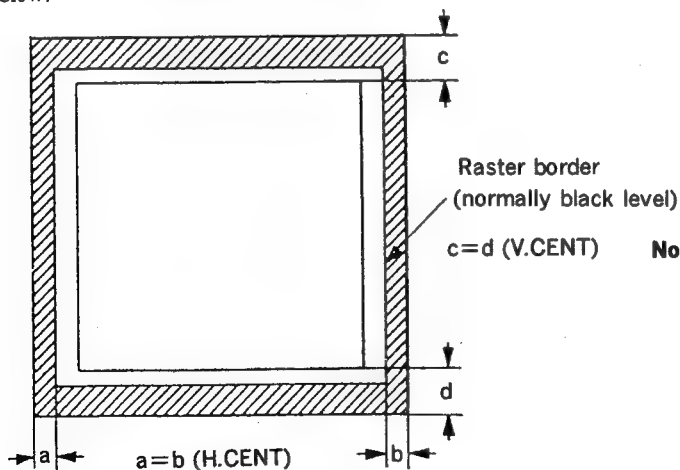


Fig. 15

6. Select the H PHASE adjustment mode and adjust with the **([<],[>])** keys so that the distance between the cross hatch and the raster portion is the same on both the left and the right sides.

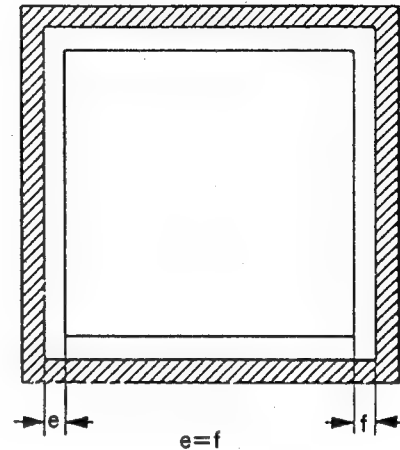


Fig. 16

7. Select the SIZE adjustment mode and adjust with the keys so that the horizontal size and vertical size are both $498 \pm 5\text{mm}$ (**([<],[>],[^],[v])**).

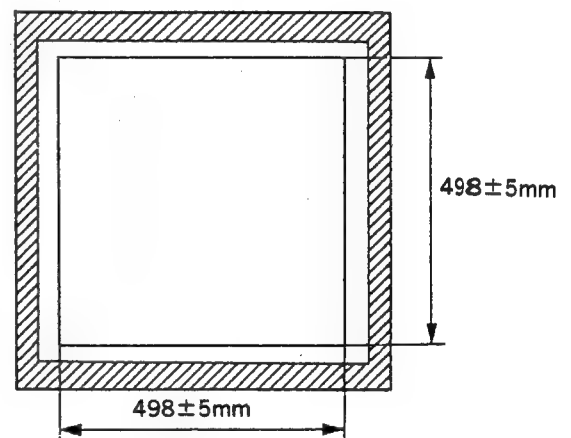


Fig. 17

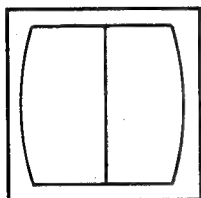
Note: V.CENT of the customer control does not operate in the GEOM adjustment mode.

8. Select H PIN, H KEYSTONE, Y SKEW and Y BOW in turn and adjust with the (\leftarrow , \rightarrow , \uparrow , \downarrow) keys so that edge lines of the crosshatch are straight.

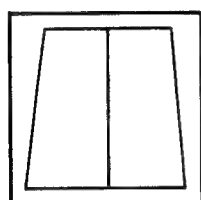
9. Select V LINEARITY and V LIN BAL in turn and adjust with the (\leftarrow , \rightarrow , \downarrow , \uparrow) keys so that the vertical lines of the cross hatch are equally spaced.

Note : Perform steps 7 and 8 while adjusting the tracking.

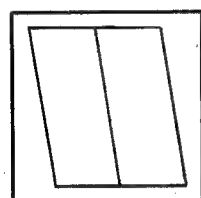
H PIN



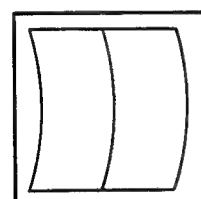
H KEYSTONE



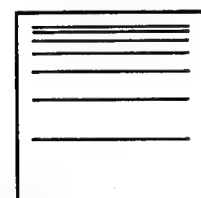
Y SKEW



Y BOW



V LIN BAL



V LINEARITY

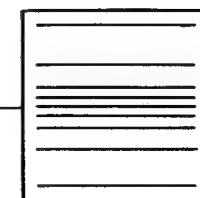
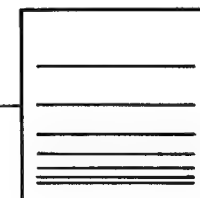
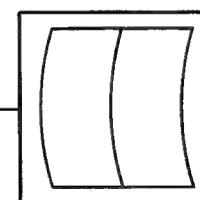
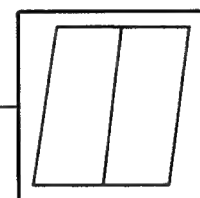
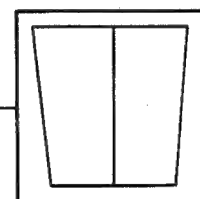
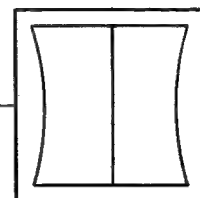
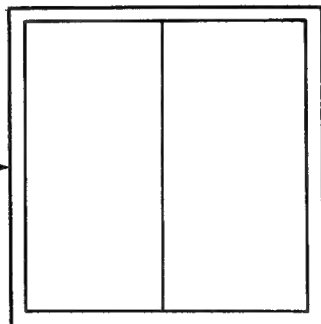
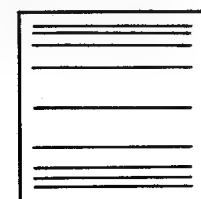


Fig. 18

10. Select T/B PIN, T/B BAL, X BOW, T/B KEYS and T/B SKEW in turn and adjust with the (◀▶, ▲▼) keys so that the horizontal lines of the cross hatch are equally spaced.

11. After performing above adjustment, save the data.

T/B PIN

Serial No. 10055 and above

TOP PIN

T/B BAL

Serial No. 10055 and above

BOTTOM PIN

X BOW

T/B KEYS

T/B SKEW

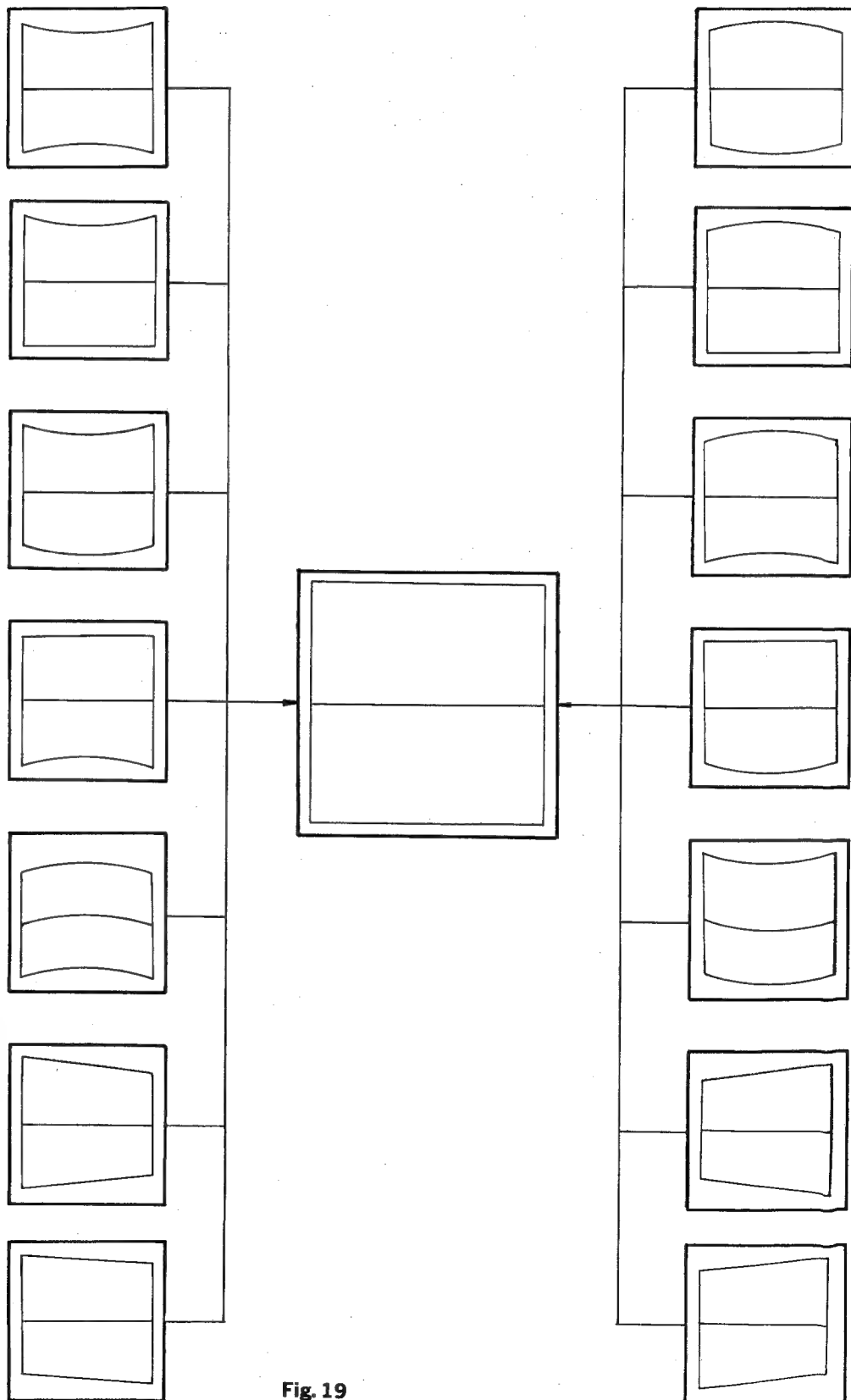


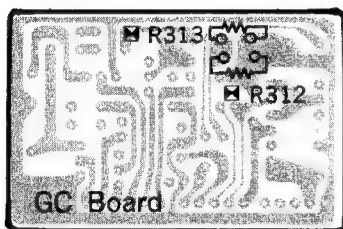
Fig. 19

4-7. SAFETY RELATED ADJUSTMENT

+B MAX ■ R312,R313

When replacing the following components (with ■ mark on the circuit diagram), be sure to confirm as follows.

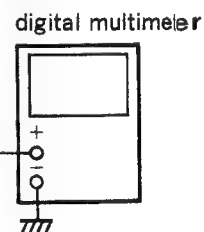
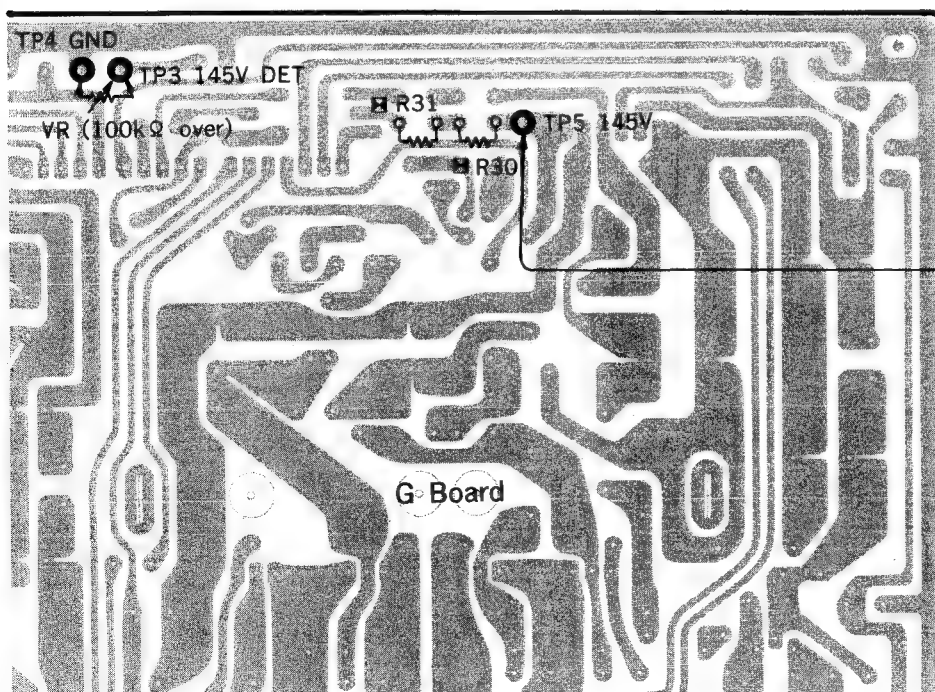
- R24,R25G board
 - IC101GA board
 - R306, R312, R313, IC301GC board
1. Supply AC120V from the power supply. (NF power supply or less than 3% fluctuation)
 2. Receive the all white signal. (controller)
 3. CONTRAST controlcenter
BRIGHTNESS controlcenter
 4. Connect the digital multimeter between TP5 on the G board and the ground.
 5. Confirm that the designation point of the digital multimeter at this time is $145.0 \pm 1.0V_{DC}$.
 6. If the specification is not satisfied, change the values of R312 and R313 until it is satisfied.



OPERATION CHECK OF THE OVP CIRCUIT ■ R30,R31

When replacing the following parts (marked ■ on the circuit diagram), be sure to confirm as follows.

- D101,Q101,R115,R116GA board
 - IC203, IC204, R213, R214, R215, R216GB board
 - IC303, R309GC board
 - R30, R309G board
1. Receive the all white signal.
 2. CONTRAST controlcenter
BRIGHTNESS controlcenter
 3. Connect the digital multimeter between TP5 on the G board and the ground.
 4. Connect the variable resistance (over 100kΩ) between TP3 on the G board and the ground.
- Note:** Set the resistance value of the variable resistance to maximum.
5. Turn down the variable resistor from the maximum value gradually, and when the value indicated on the digital multimeter becomes $154.0 \pm 6.0V_{DC}$, confirm that the OVP circuit operates and the voltage goes down suddenly (0V), after which the picture disappears.
 6. If the specification is not satisfied, change the values of R30 and R31 until it is satisfied.
 7. Remove the variable resistance, and confirm that $145.0 \pm 1.0V_{DC}$ has been achieved.

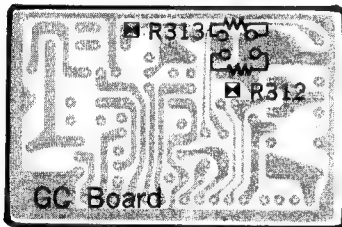


4-7. SAFETY RELATED ADJUSTMENT

+B MAX ■ R312,R313

When replacing the following components (with ■ mark on the circuit diagram), be sure to confirm as follows.

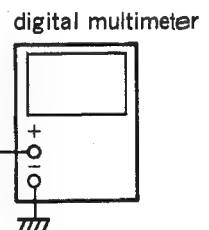
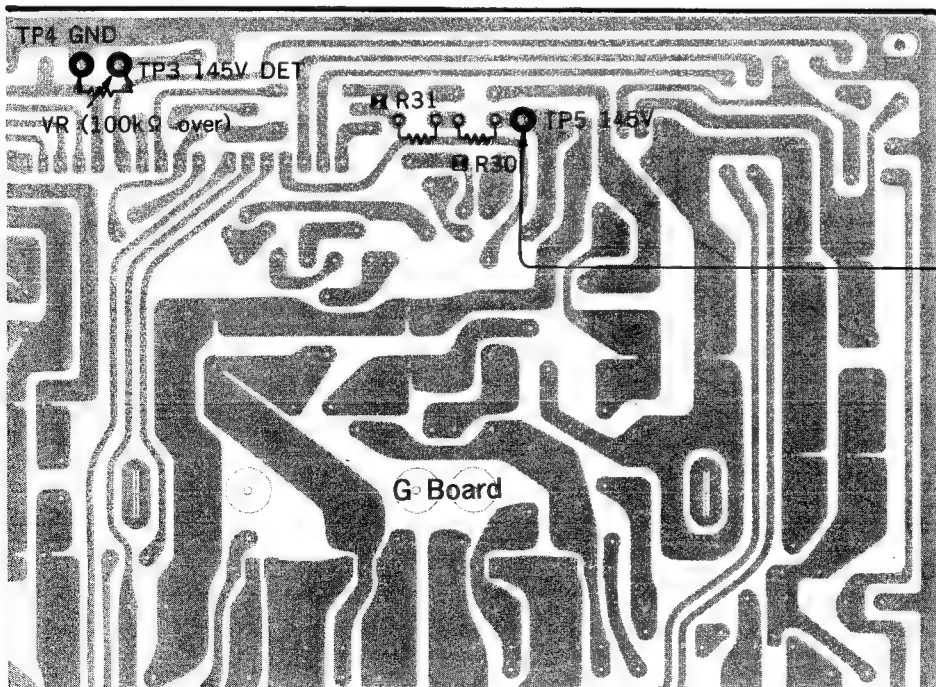
- R24,R25 G board
 - IC101 GA board
 - R306, R312, R313, IC301 GC board
1. Supply AC120V from the power supply. (NF power supply or less than 3% fluctuation)
 2. Receive the all white signal. (controller)
 3. CONTRAST controlcenter
BRIGHTNESS controlcenter
 4. Connect the digital multimeter between TP5 on the G board and the ground.
 5. Confirm that the designation point of the digital multimeter at this time is $145.0 \pm 1.0V_{DC}$.
 6. If the specification is not satisfied, change the values of R312 and R313 until it is satisfied.



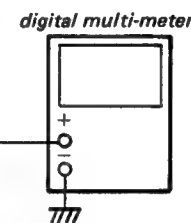
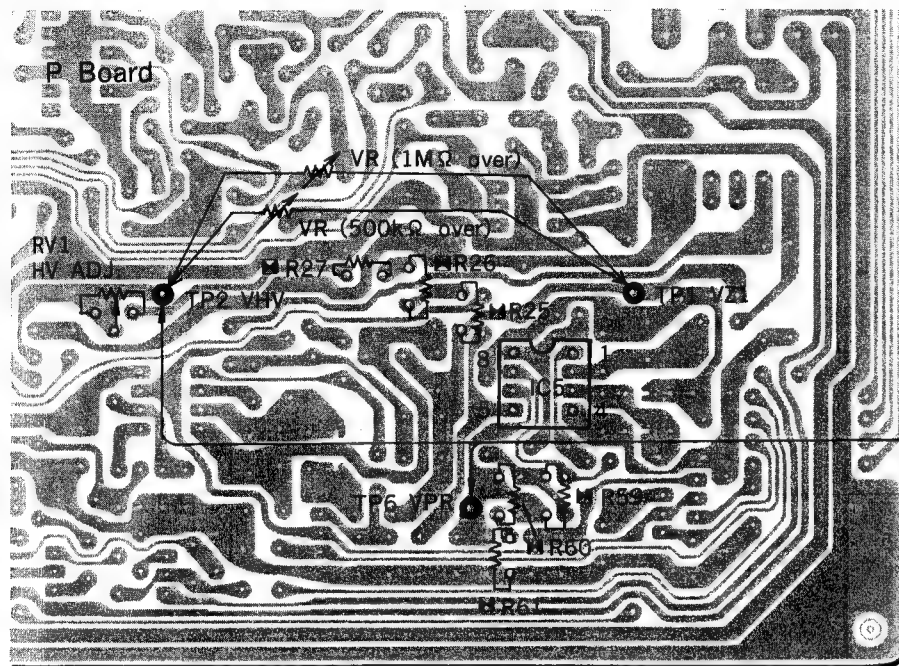
OPERATION CHECK OF THE OVP CIRCUIT ■ R30,R31

When replacing the following parts (marked ■ on the circuit diagram), be sure to confirm as follows.

- D101,Q101,R115,R116 GA board
 - IC203, IC204, R213, R214, R215, R216 GB board
 - IC303, R309 GC board
 - R30, R309 G board
1. Receive the all white signal.
 2. CONTRAST controlcenter
BRIGHTNESS controlcenter
 3. Connect the digital multimeter between TP5 on the G board and the ground.
 4. Connect the variable resistance (over 100k Ω) between TP3 on the G board and the ground.
- Note:** Set the resistance value of the variable resistance to maximum.
5. Turn down the variable resistor from the maximum value gradually, and when the value indicated on the digital multimeter becomes $154.0 \pm 6.0V_{DC}$, confirm that the OVP circuit operates and the voltage goes down suddenly (0V), after which the picture disappears.
 6. If the specification is not satisfied, change the values of R30 and R31 until it is satisfied.
 7. Remove the variable resistance, and confirm that $145.0 \pm 1.0V_{DC}$ has been achieved.



1-627-362-12



OPERATION CHECK OF THE HV REGULATOR CIRCUIT
R25, R26, R27

When replacing the following components (marked \blacksquare on the circuit diagram), be sure to confirm as follows.

- \blacksquare IC2, IC3, RV1, R23, R24, R25,
R26, R27, R28, R29, R31, R34 P board.
HV BLOCK

• When using a high voltage meter

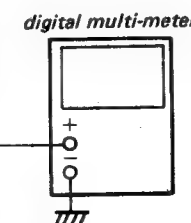
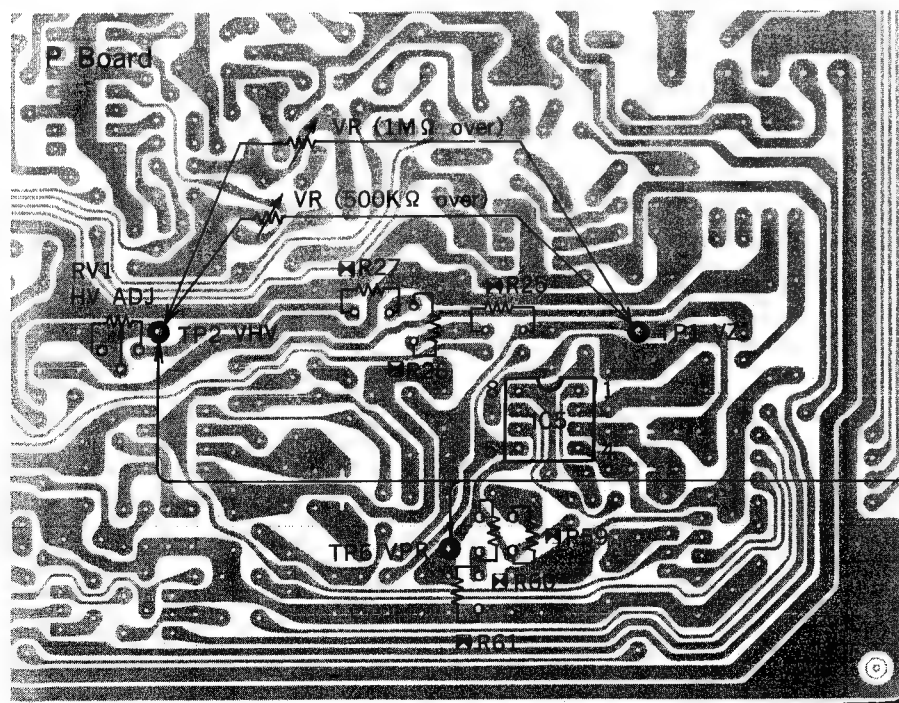
Note: Use a calibrated high voltage meter whose input impedance is more than $2 \times 10^9 \Omega$

1. Receive the all white signal. (controller)
2. CONTRAST control center
BRIGHTNESS control center
3. Connect the high voltage meter to the CRT anode.
4. Turn RV1 (HV ADJ) on the P board fully clockwise, and confirm that the value indicated on the high voltage meter is $29.98 \pm 0.00 \text{ kV}$ at this time.
5. If the specification is not satisfied, change the values of R25, R26, R27 until it is satisfied.
6. After checking, adjust so that the anode voltage becomes $29.90 \pm 0.08 \text{ kV}$ at RV1 on the P board.

• When not using a high voltage meter (When using a digital multimeter).

1. Receive all white signal. (with the controller)
2. CONTRAST control center
BRIGHTNESS control center
3. Connect the digital multimeter between TP2 on the P board and the ground.
4. Turn RV1 (HV ADJ) on the P board fully clockwise.
5. Confirm that the value indicated on the digital multimeter becomes $7.046 \pm 0.00 \text{ V}$.
6. If the specification is not satisfied, change the values of R25, R26, R27 until it is satisfied.

1-627-362-13



OPERATION CHECK OF THE HV HOLD DOWN CIRCUIT
R59, R60, R61

When replacing the following components (marked \blacksquare on the circuit diagram), be sure to confirm as follows.

- \blacksquare IC4, IC5, D16, R37, R38, R57
R58, R59, R60, R61, R62, R63, R96 P board
HV BLOCK

• When using a high voltage meter

1. Receive the all white signal. (controller)
2. CONTRAST control center
BRIGHTNESS control center
3. Connect the high voltage meter to the CRT anode.
4. Connect the digital multimeter between TP6 (VPR) on the P board and the ground.
5. Select the resistance values of R59, R60 and R61 so that the value indicated on the on the digital multimeter becomes $10.43 \pm 0.10 \text{ V}_{\text{DC}}$.
6. Connect the variable resistance (over $1 \text{ M}\Omega$) between TP1 (VZ) on the P board and TP2 (VHV).

Note: Set the resistance value of the variable resistor to maximum in advance.

7. Lower the variable resistance gradually from the maximum value gradually. Increase the anode voltage and when the electrostatic voltmeter reading is $31.30 \text{ kV} \pm 0.70 \text{ kV}_{\text{DC}}$, confirm that the HV hold down circuit operates, the voltage goes down suddenly (0V) and the picture disappears.

• When not using the high voltage meter.

(When using a digital multimeter)

1. Receive the all white signal. (controller)
2. CONTRAST control center
BRIGHTNESS control center
3. Connect the digital multimeter between TP6 (VPR) on the P board and the ground.
4. Adjust the resistance values of R59, R60 and R61 so that the value indicated on the digital multimeter becomes $10.27 \pm 0.12 \text{ V}_{\text{DC}}$.
5. Connect the variable resistor (over $500 \text{ k}\Omega$) between TP1 (VZ) and TP2 (VHV).

Note: Set the resistance value of the variable resistor to maximum in advance.

6. Lower the variable resistance gradually from the maximum value and increase the anode voltage. When the voltage of pin ⑤ of IC5 on the P board is equivalent to that of TP6, confirm that the picture disappears.

**OPERATION CHECK OF THE CURRENT PROTECTOR ONE
CIRCUIT ■ R41**

When replacing the following components (marked ■ on the circuit diagram), be sure to confirm as follows.

■ IC4, IC5, D12, D13, R37, R38, R40, R41,

R42, R43, R44, R45, R46, R65, R66 P board

1. Receive all white signal.
2. CONTRAST control center
BRIGHTNESS control center
3. Unplug the P-5 connector on the P board, and attach the jig to measure ABL current (1HV).
4. Connect the digital multimeter between TP1 on the P board and the ground, and confirm that the voltage is $32.5 \pm 1.5 V_{DC}$.
5. Short-circuit R56 on the P board. (To stop the operation of current protector 2).
6. Receive the all black signal.
7. Set the CONTRAST and BRIGHTNESS controls to minimum. The value indicated on the DC current meter should be I_1 at this time.
8. Receive the all white signal.

9. Set the CONTRAST and BRIGHTNESS controls to maximum, and raise the R, G, B contrast levels. Confirm that the value obtained by subtracting I_1 from the current value becomes $1.40 \pm 0.20 \text{ mA}$, and that the current protector 1 circuit operates and the picture disappears.

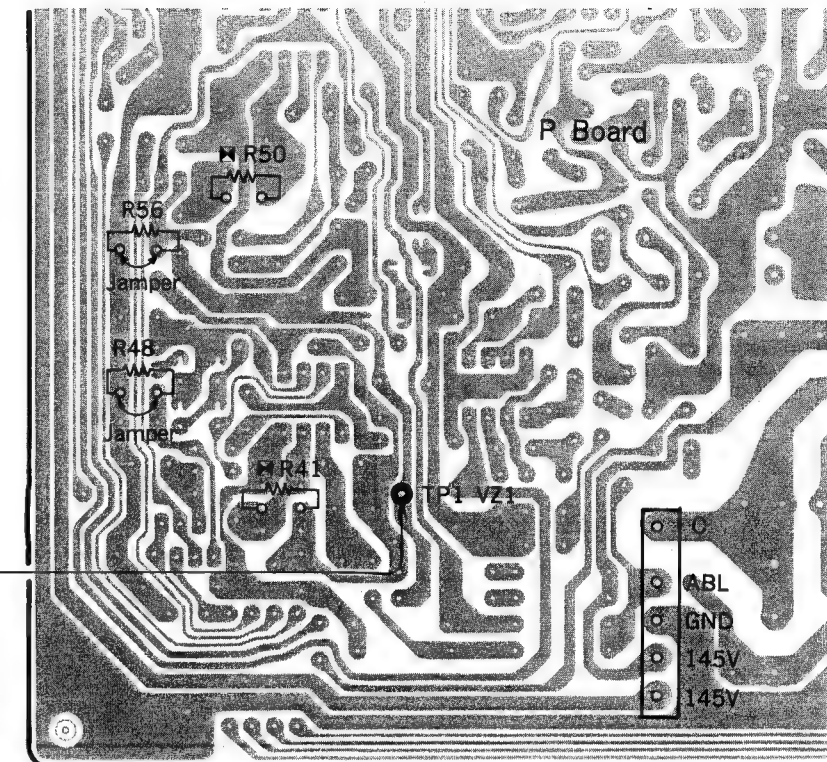
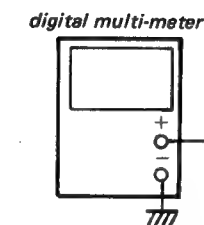
Note: If, for the current value, the above-mentioned value is not obtained, raise the BKG levels.

10. If the specification is still not satisfied, change the value of R41.

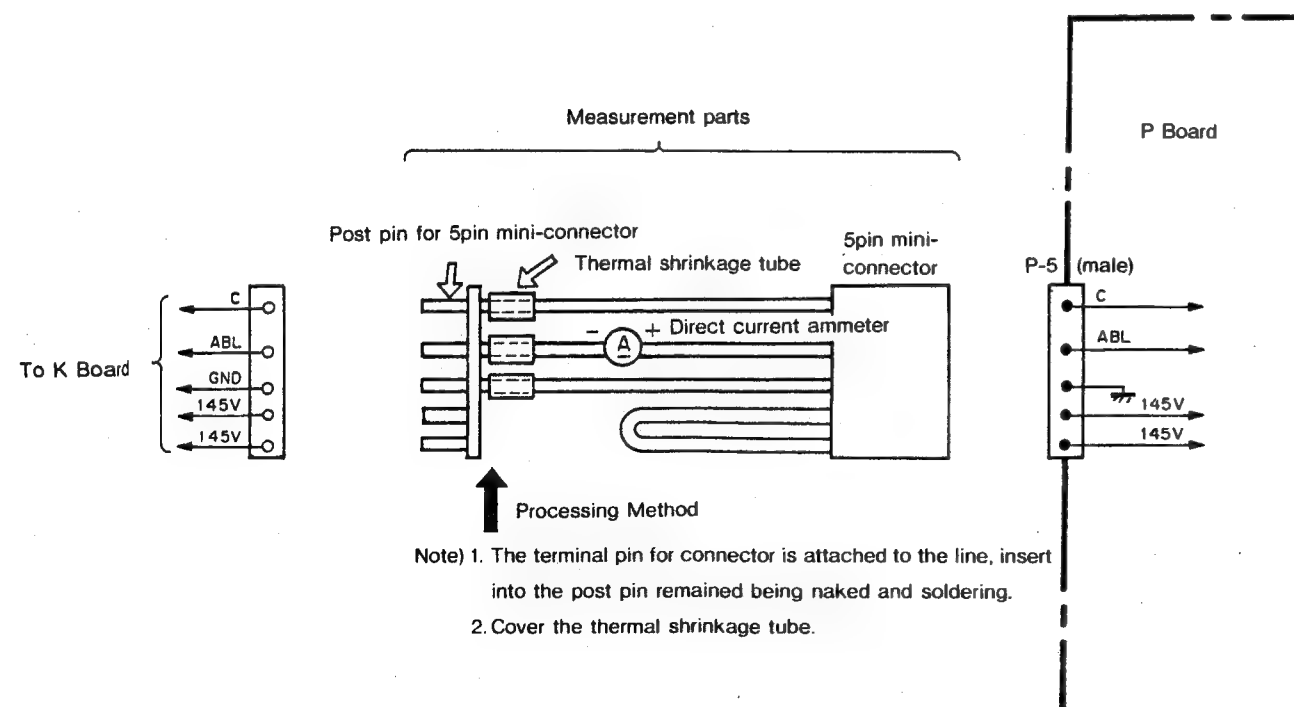
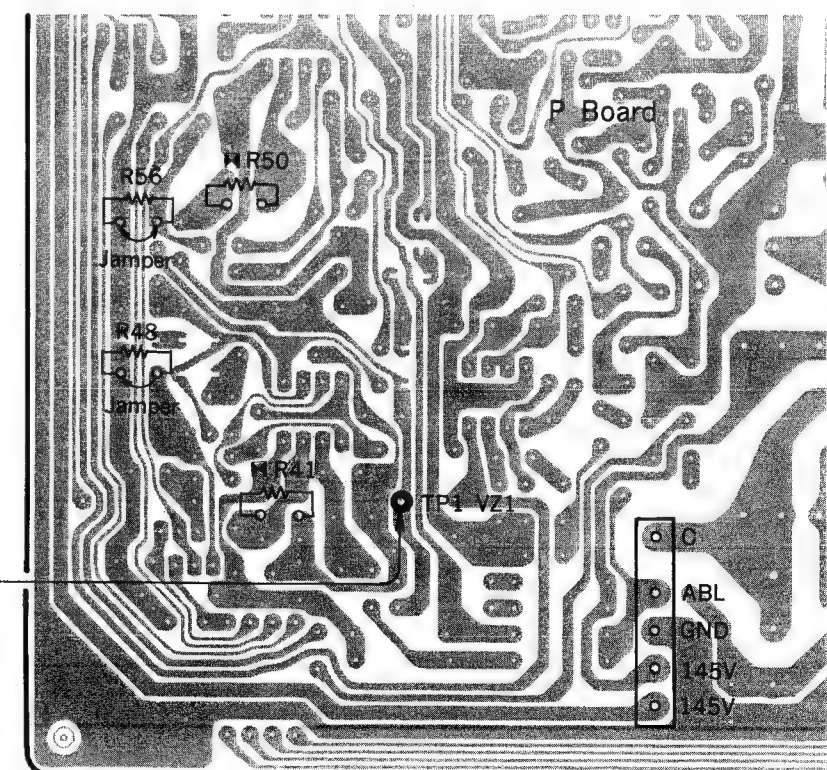
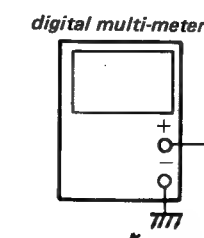
11. Turn off the power supply of the unit, and return R56 and the P-5 connector to their original states. The R, G, B contrast levels will return to their initial states.

Note: When changing the contrasts and BKG data of R, G and B, do not save the changes.

1-627-362-12



1-627-362-13



Confirmation of Current Protector Two Circuit Operation ■ R50

When replacing the following parts (with ■ mark on the circuit diagram), be sure to confirm as follows.

■ IC2, IC6, D14, D15, R23, R24, R49, R50,
R51, R52, R53, R54, R55, R67, R68P board

1. Receive picture of all white signal. (controller)
2. CONTRAST controlcenter
BRIGHTNESS controlcenter
3. Unplug the P-5 connector on the P board, and install the parts to measure the ABL current (1HV).
4. Connect the digital multimeter between TP1 on the P board and the ground, and confirm that the voltage is 32.5Vdc.
5. Short R48 on the P board. (Stop the actuation of the current protector1).
6. Receive picture of all black signal.
7. Set the control of the CONTRAST and the BRIGHTNESS to the minimum, and set the designated of the direct currentmeter at this time as I_2 .

8. Receive picture of all white signal.
9. Set the control of the CONTRAST and the BRIGHTNESS to the maximum, and raise the contrast level of R, G, B by the commander, and confirm that the value which is subtracted I_2 from this current value is $1.40 \pm 0.20\text{mA}$, and the circuit of the current protector 2 is actuated and the picture will be disappeared.

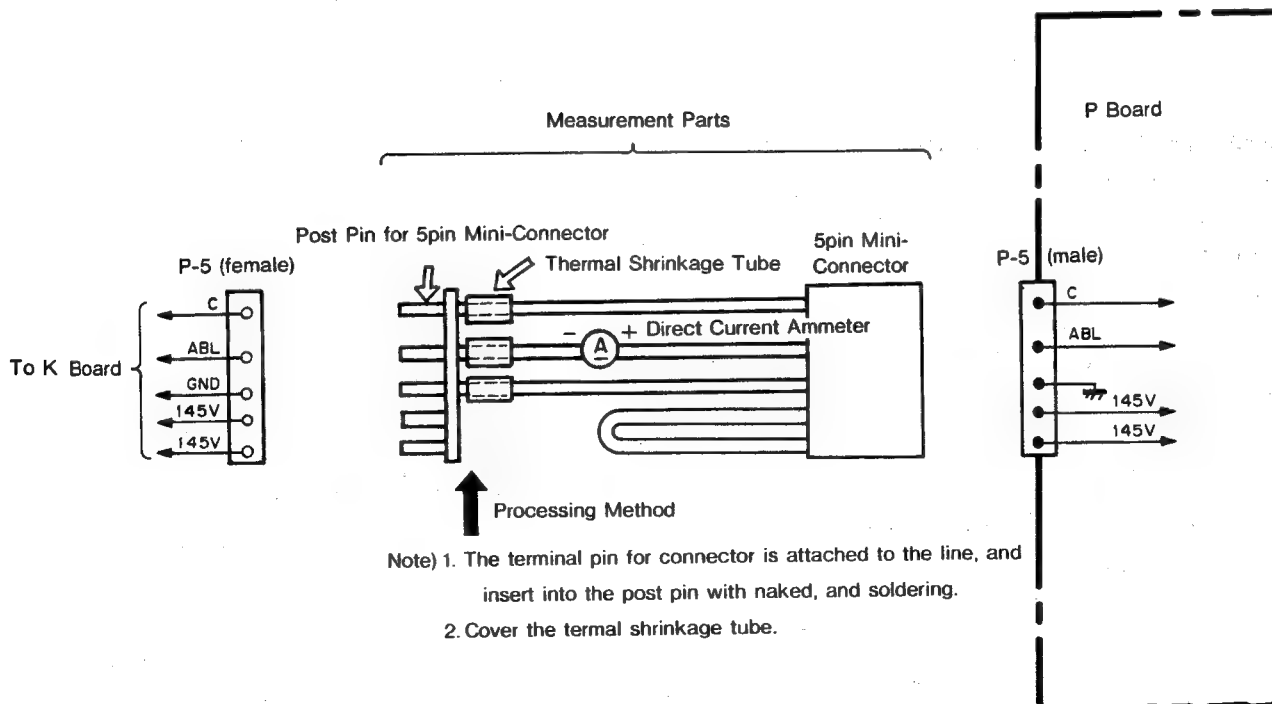
Note : If the current is not turned to above value, still raise the BKG level of R, G, B.

10. If the standard is not satisfied, select the resistance value of R50 to satisfy the standard.

11. Turn off the power of set, install the connector of P-5 and R48.

The contrast level of R, G, B and the BICG level of R, G, B is returned to the initial mode.

Note : When changing the contrast of R, G, B and the BKG data, be careful not to save (write into memory in the set).



4-8. ELECTRICITY ADJUSTMENT

4-8-1. A BOARD ADJUSTMENT

VGG and Cathode Bias Voltage Adjustment

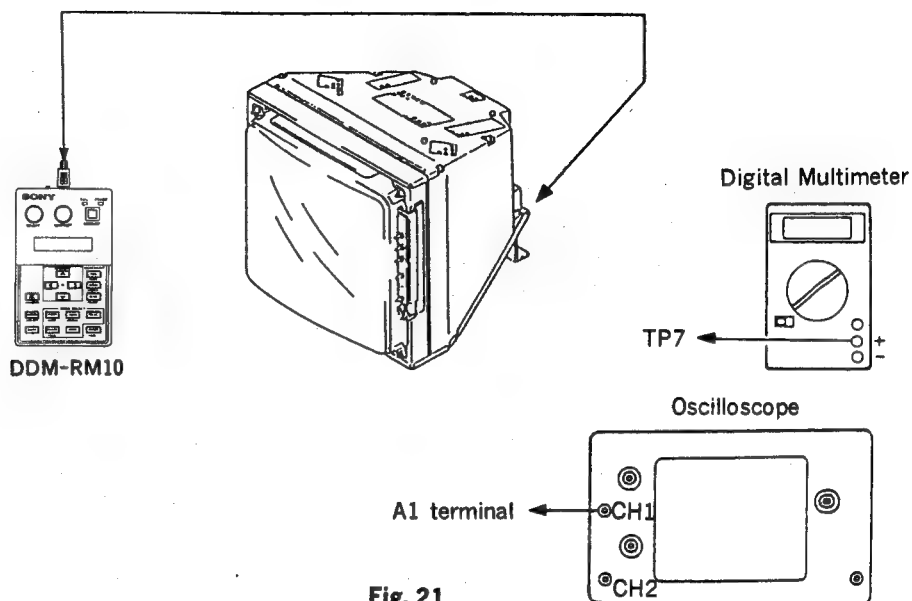


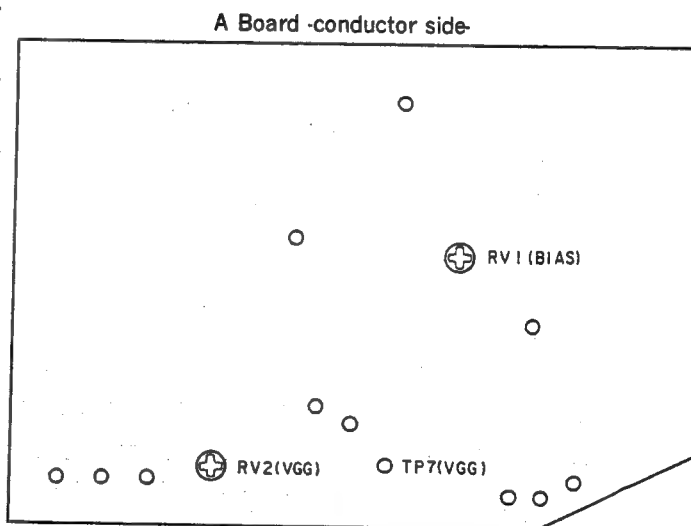
Fig. 21

VGG ADJUSTMENT

1. Select **VIDEO** in the adjustment mode.
2. Automatically, the picture will be an all white signal, so turn the screen to all black in the /INVERSE mode. (Invert the screen)
3. Connect the digital multimeter with TP7 on the A board.
4. Adjust to $10.00 \pm 0.1V_{DC}$ with RV2.
5. Adjust the three A boards in the same way as 1 through 4.

CATHODE BIAS VOLTAGE ADJUSTMENT

1. Select **VIDEO** in the adjustment mode.
2. Automatically, the picture will be an all white signal, so turn the screen to all black in the /Inverse mode. (Invert the picture)
3. Connect the oscilloscope probe with the A1 terminal (junction of the ABoard) on the AA board.
4. Adjust to $65.0 \pm 0.5V_{DC}$ with RV1.



AA Board -component side-

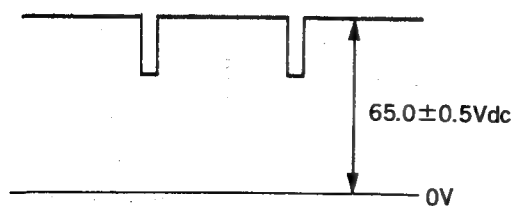
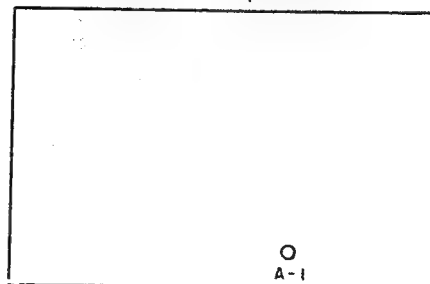


Fig. 22

Fig. 23

4-8-2. B BOARD ADJUSTMENT

H.SYNC Timing, Output Level and H.BLK Width Adjustments

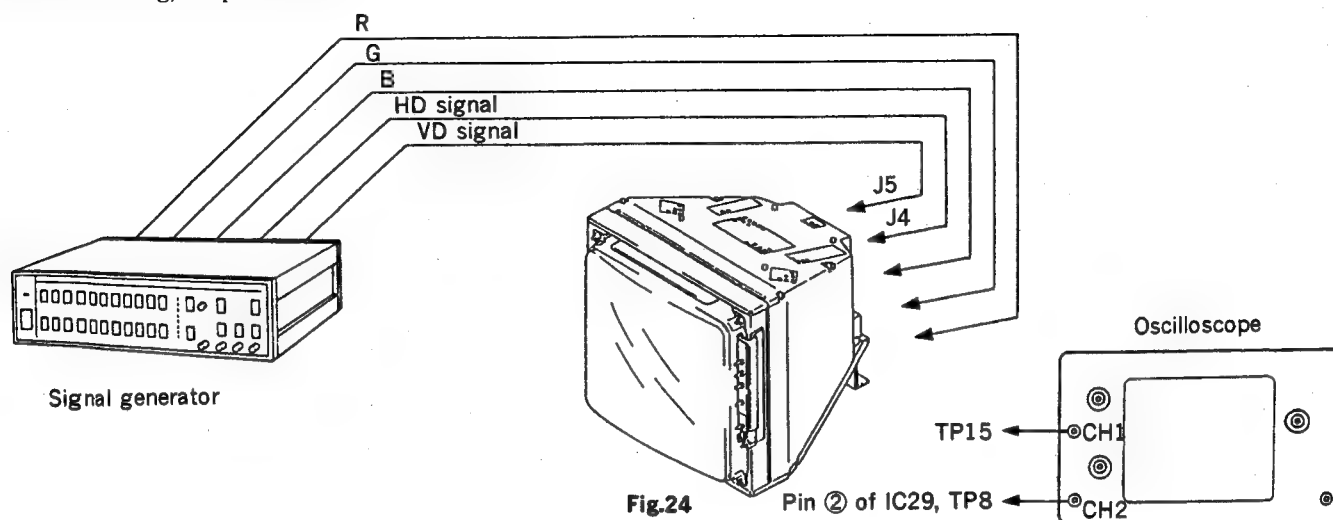


Fig.24

H.SYNC TIMING ADJUSTMENT

1. Input HD and VD signals to J4 and J5 from the external signal generator.

Note: TP1(HD) should be 126.84 ± 0.02 kHz at TTL level.

TP2(VD) should be 60.00 ± 0.01 Hz at TTL level.

2. Set SW1 to TEST or HATCH on the B board.
3. Connect the oscilloscope probe to TP15 (video output signal) and to pin ② (H.SYNC) of IC29.
4. Adjust RV2 (H.SYNC TIMING) so that the front porch is $0.117 \pm 0.003 \mu s$ as shown in the figure below.

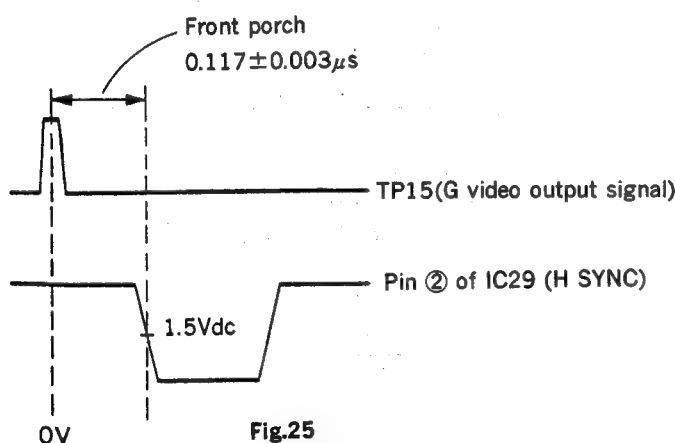


Fig.25

OUTPUT LEVEL ADJUSTMENT

1. Set SW1 to NORMAL on the B board.
2. Select All White by the [SG SEL] key.
3. Connect the oscilloscope probe to TP15 (video output signal).
4. Adjust RV3 until TP15 indicates 1.07 ± 0.03 Vp-p.
5. Select GRAY by the [SG SEL] key.
6. Adjust RV4 until TP15 indicates 0.214 ± 0.006 Vp-p.

H.BLK WIDTH ADJUSTMENT

1. Set SW1 to TEST or HATCH.
2. Connect the oscilloscope probe to TP8(G1G) and TP15 (video output signal).
3. Adjust RV1 (H.BLK WIDTH) so that the timing is $0.12 \mu s \pm 0.02 \mu s$ as shown in the figure below.

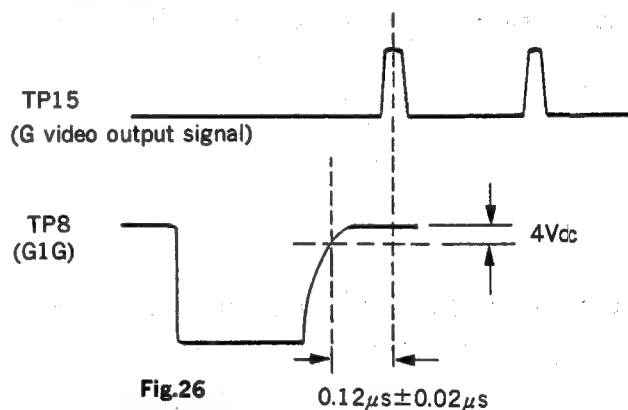
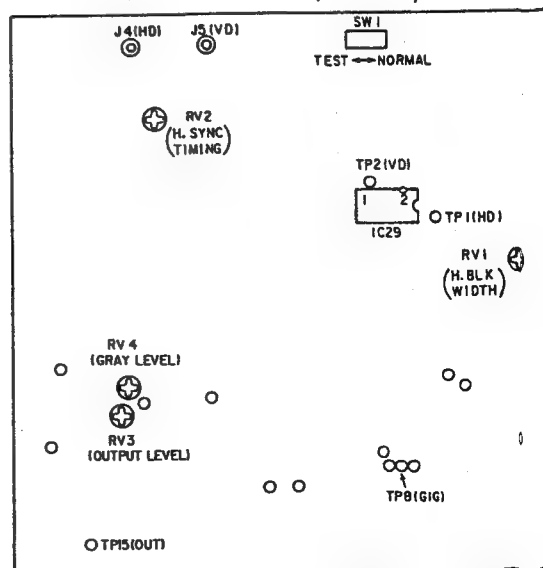


Fig.26



B Board -component side-

Fig.27

4-8-3. E BOARD ADJUSTMENT(1)

H.CENT and H.SIZE Operation Check and Offset Adjustment

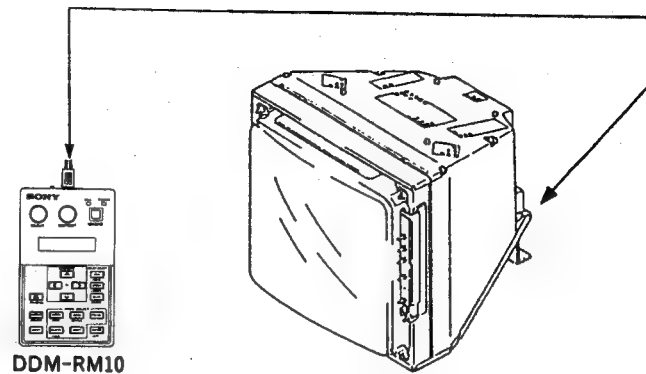
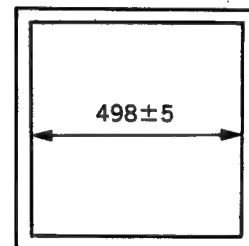


Fig. 28

H.CENT OPERATION CHECK AND OFFSET ADJUSTMENT

1. Select CENT of GEOM in the adjustment mode.
2. Confirm that the picture is shifted right and left when changing the data of H.CENT. (\leftarrow , \rightarrow)
3. Change the data of H.CENT and adjust to H: 80. (\leftarrow , \rightarrow)
4. Adjust the picture to center with RV2.



H.SIZE OPERATION CHECK AND OFFSET ADJUSTMENT

1. Select SIZE of GEOM in the adjustment mode.
2. Confirm that the size of the picture is changed when changing the data of H.SIZE (\leftarrow , \rightarrow)
3. Change the data of H.SIZE and adjust to H: 80. (\leftarrow , \rightarrow)
4. Adjust the size of the picture to 498 ± 5 mm with RV1.

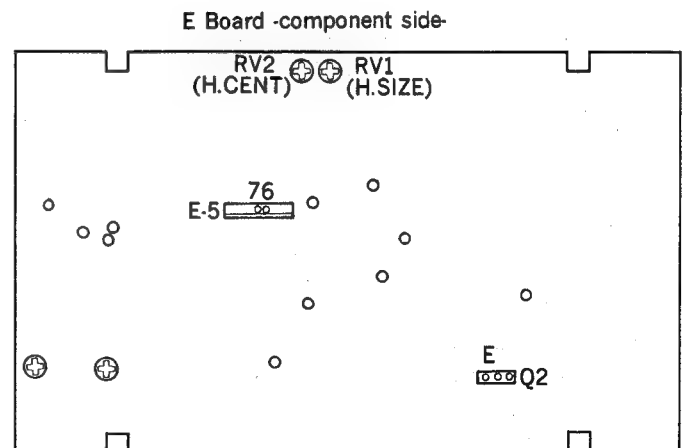


Fig. 29

4-8-4. E BOARD ADJUSTMENT(2)

H.FREQ and V.HOLD Adjustments

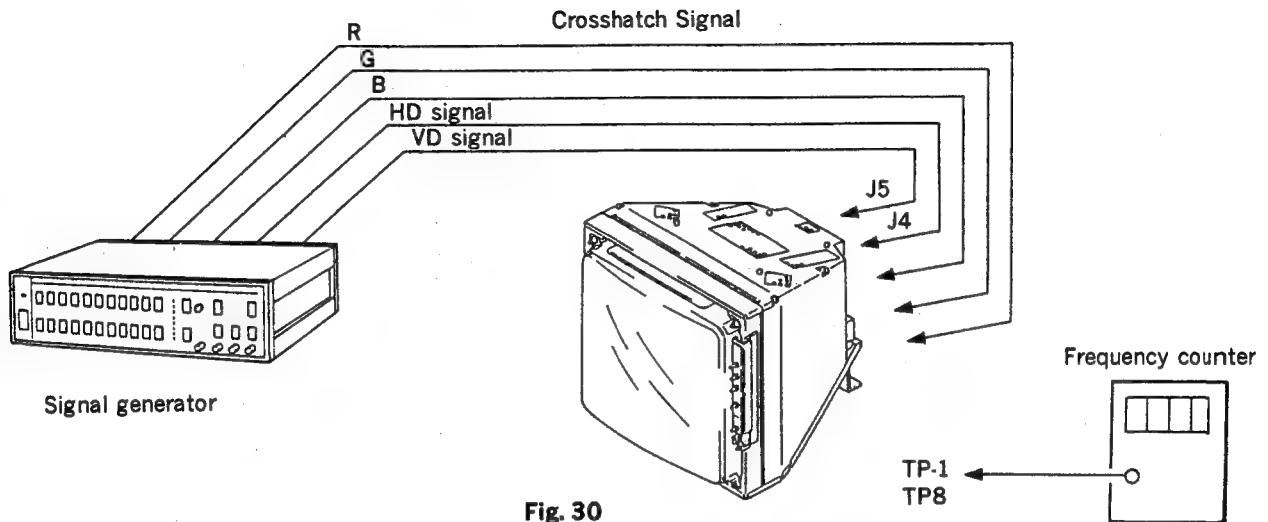


Fig. 30

H. FREQ ADJUSTMENT

1. Select the EX mode by the **SG SEL** key.
2. Input the crosshatch signal from the external signal generator.
3. In order to get into a free run condition, connect a $47\mu\text{F}/25\text{V}$ capacitor between TP9 and the ground.
4. Turn RV3 clockwise or counterclockwise, and confirm that the horizontal sync on the screen is locked.



5. After adjustment, remove the capacitor and confirm that the horizontal sync is locked.

Note : In case an external signal generator is not available, connect a frequency counter to TP1, connect a capacitor between TP9 and the ground, adjust RV3 so that the frequency counter reading becomes $f_H = 126.84\text{KHz} \pm 600\text{Hz}$.

V.HOLD ADJUSTMENT

1. Select the EX mode by the **SG SEL** key.
2. Input the crosshatch signal from the external signal generator.
3. Connect the frequency counter to TP8.
4. In order to get into the free run condition, connect a $47\mu\text{F}/25\text{V}$ capacitor between TP10 and the ground.
5. Adjust the frequency counter to $f_H = 55.0 \pm 1.0\text{Hz}$ with RV4.
6. After the adjustment, remove the capacitor and confirm that the vertical sync is locked.

E Board -component side-

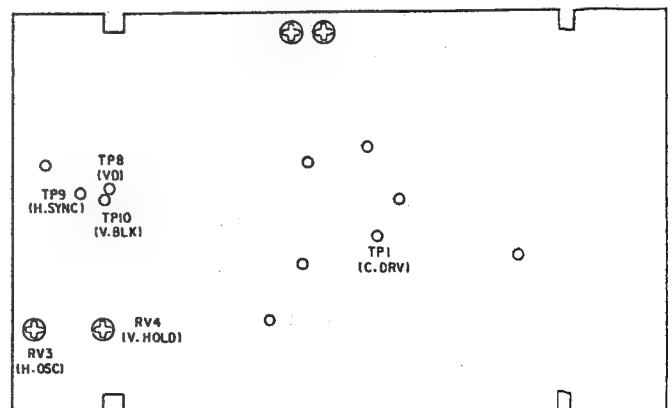


Fig. 31

4-8-5. M1 BOARD ADJUSTMENT

Address Counter Adjustment

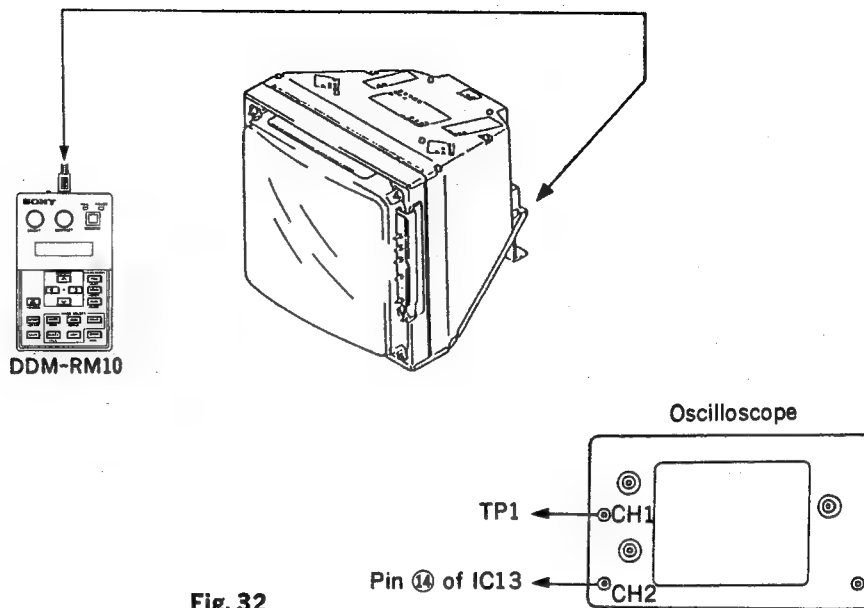


Fig. 32

ADDRESS COUNTER ADJUSTMENT

1. Select **VIDEO** mode.
2. Automatically, the picture will be an all white signal.
3. Connect CH1 of the oscilloscope to TP1(HD). Connect CH2 of the oscilloscope to pin 14 of IC13. To achieve a jitter-free condition, adjust RV2 as shown in the figure below.

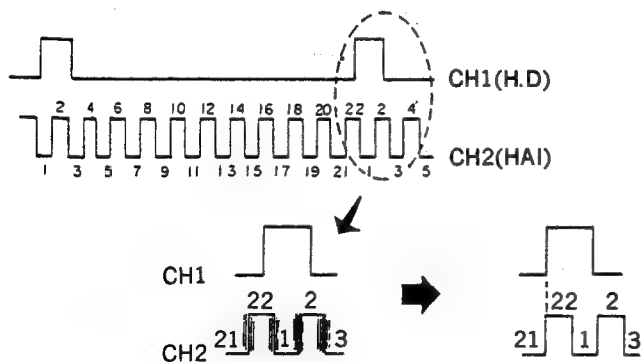


Fig. 33

M1 Board -component side-

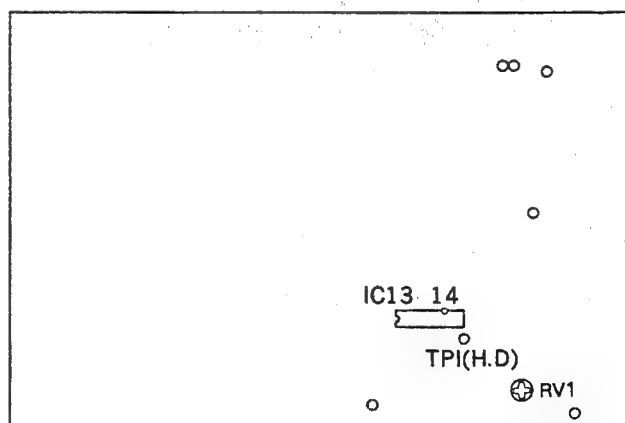


Fig. 34

4. Confirm that the CH2 waveform consists of 22 pulses.

4-8-6. R BOARD ADJUSTMENT

DF-Y Operation Check and Offset Adjustment

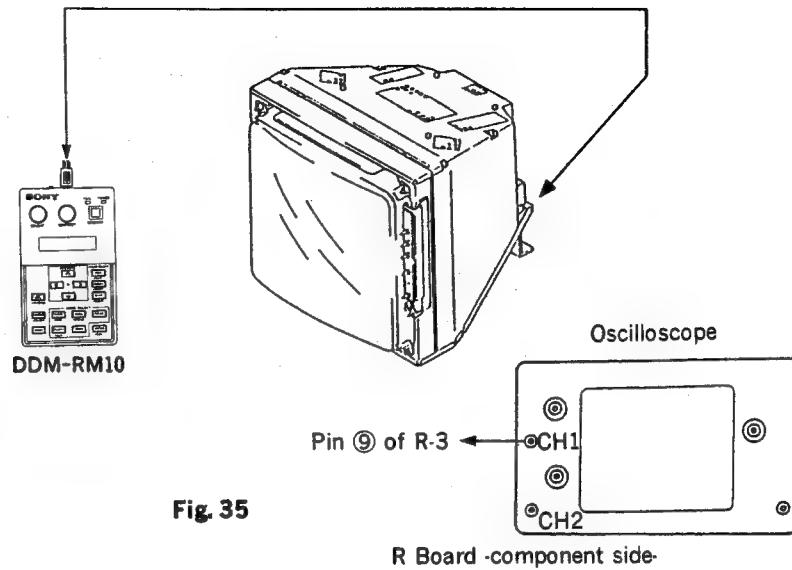


Fig. 35

DF-Y OPERATION CHECK AND OFFSET ADJUSTMENT

1. Select COAR2 mode of FOCUS key.
2. Automatically, the picture will become cross hatch 2. Next, turn on the cursor display and verify that it is at the center of the screen.
3. Press the OPERATE key (V, A) and set the data of DYNAMIC FOCUS to 80.
4. Turn RV1 clockwise or counterclockwise, and confirm that the focus in the picture is changed.
5. Adjust the center of the picture to be just focused with RV1.

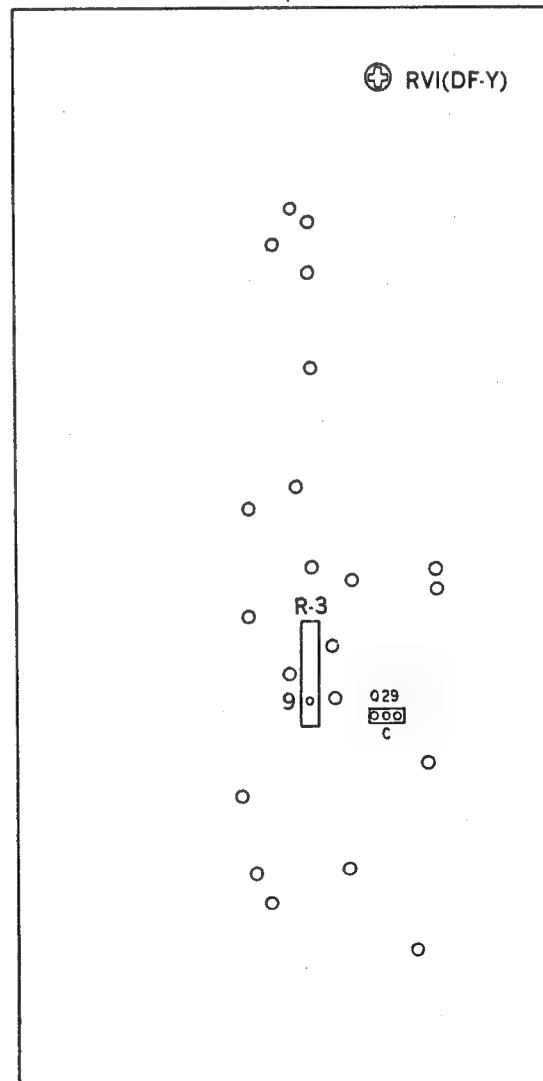


Fig. 36

4-8-7. S BOARD ADJUSTMENT

Purity Operation Check and Offset Adjustment

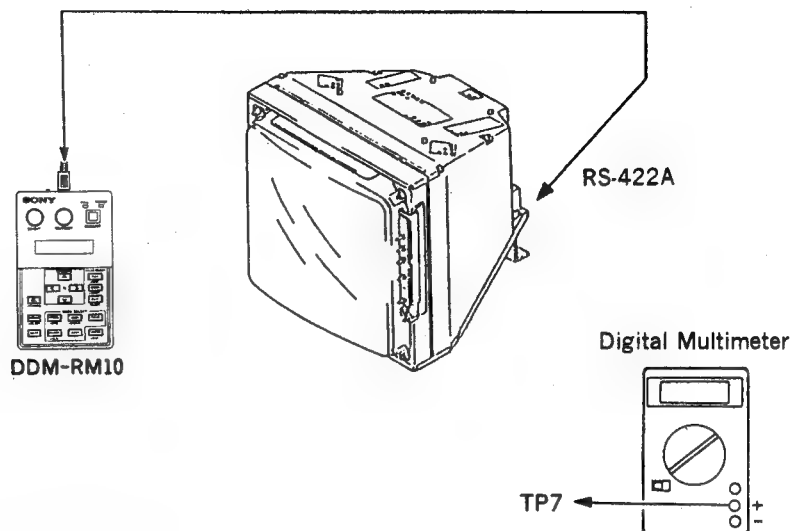


Fig. 37

PURITY OPERATION CHECK AND OFFSET ADJUSTMENT

1. Select the PURITY mode.
2. Connect the digital multimeter to TP7.
3. Confirm that TP7 voltage varies from $-5V_{DC}$ to $+5V_{DC}$ when PURITY data is varied from "00" to "FF" (\leftarrow , \rightarrow).
4. Connect the digital multimeter to pin ⑮ of IC3 and set the voltage to $2.5V_{DC}$ by varying PURITY data. (\leftarrow , \rightarrow).
5. Connect the digital multimeter to TP7 and adjust RV1 (PURITY) to $0V_{DC}$.

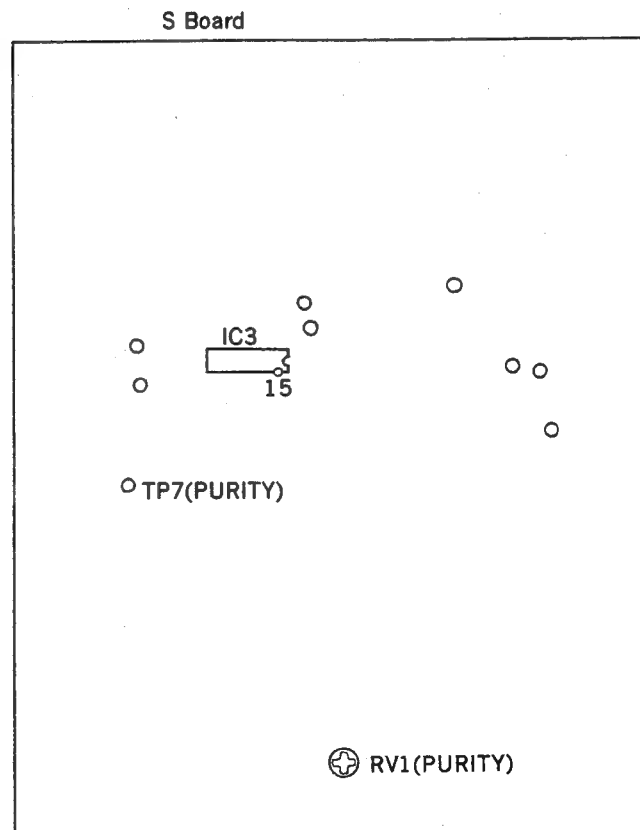
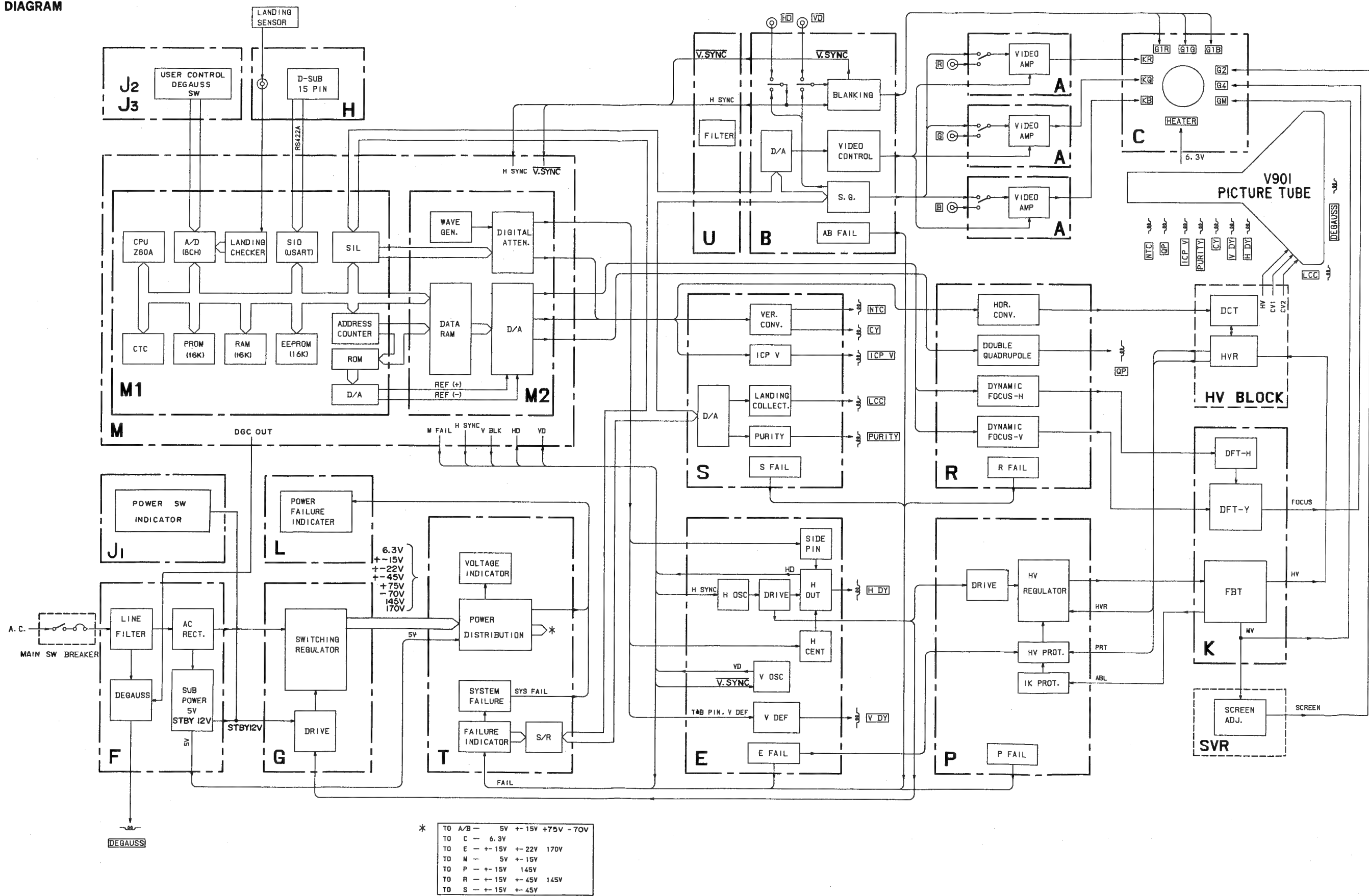


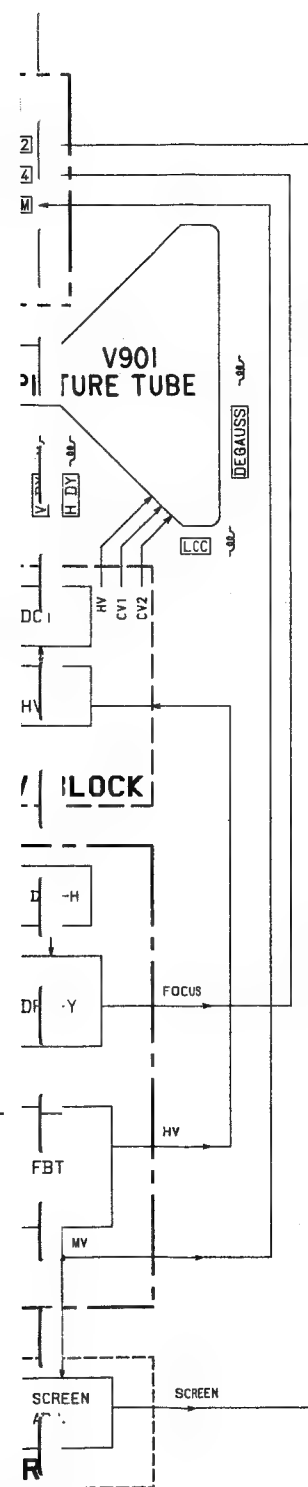
Fig. 38

SECTION 5

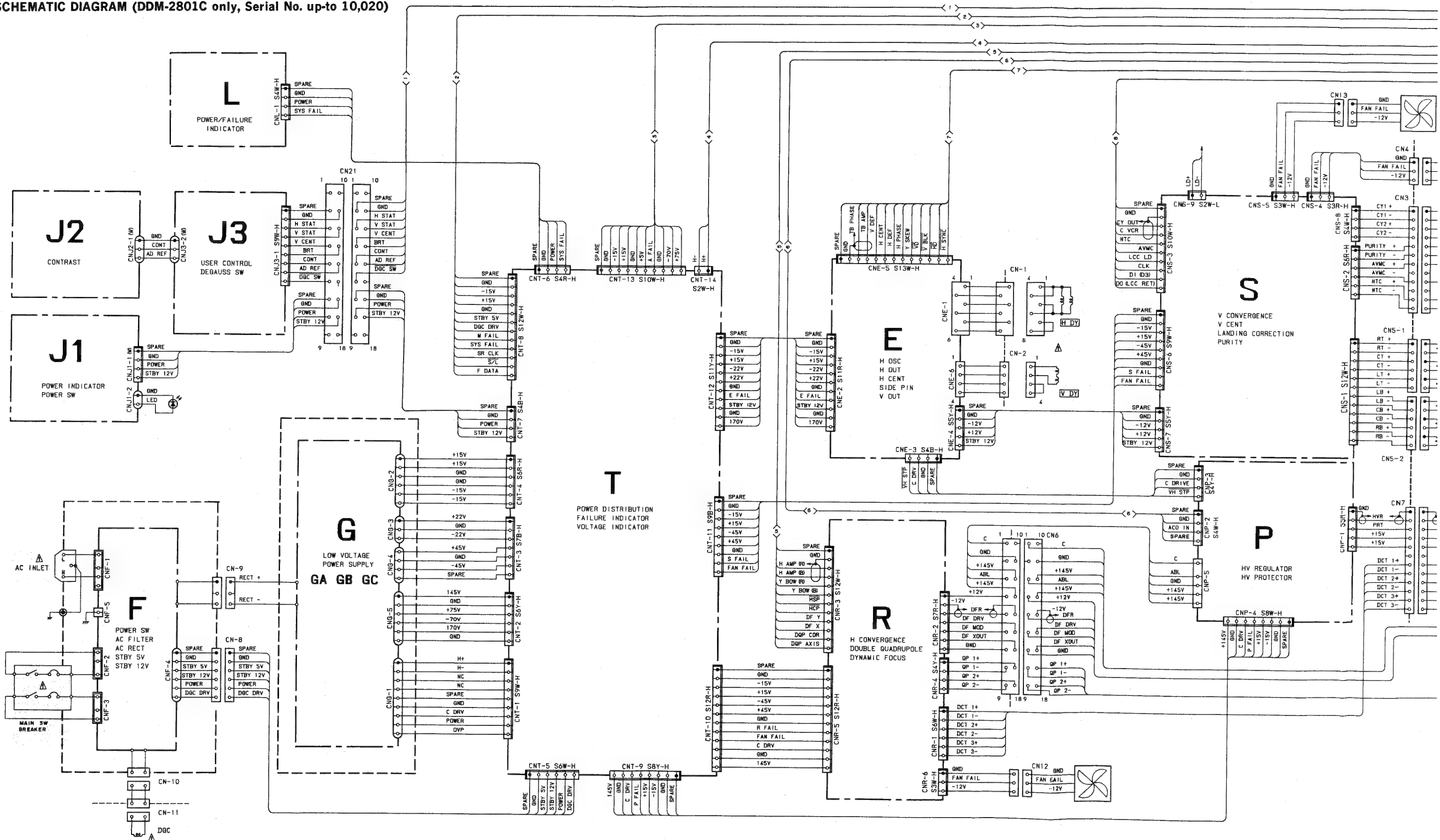
DIAGRAMS

5-1. BLOCK DIAGRAM

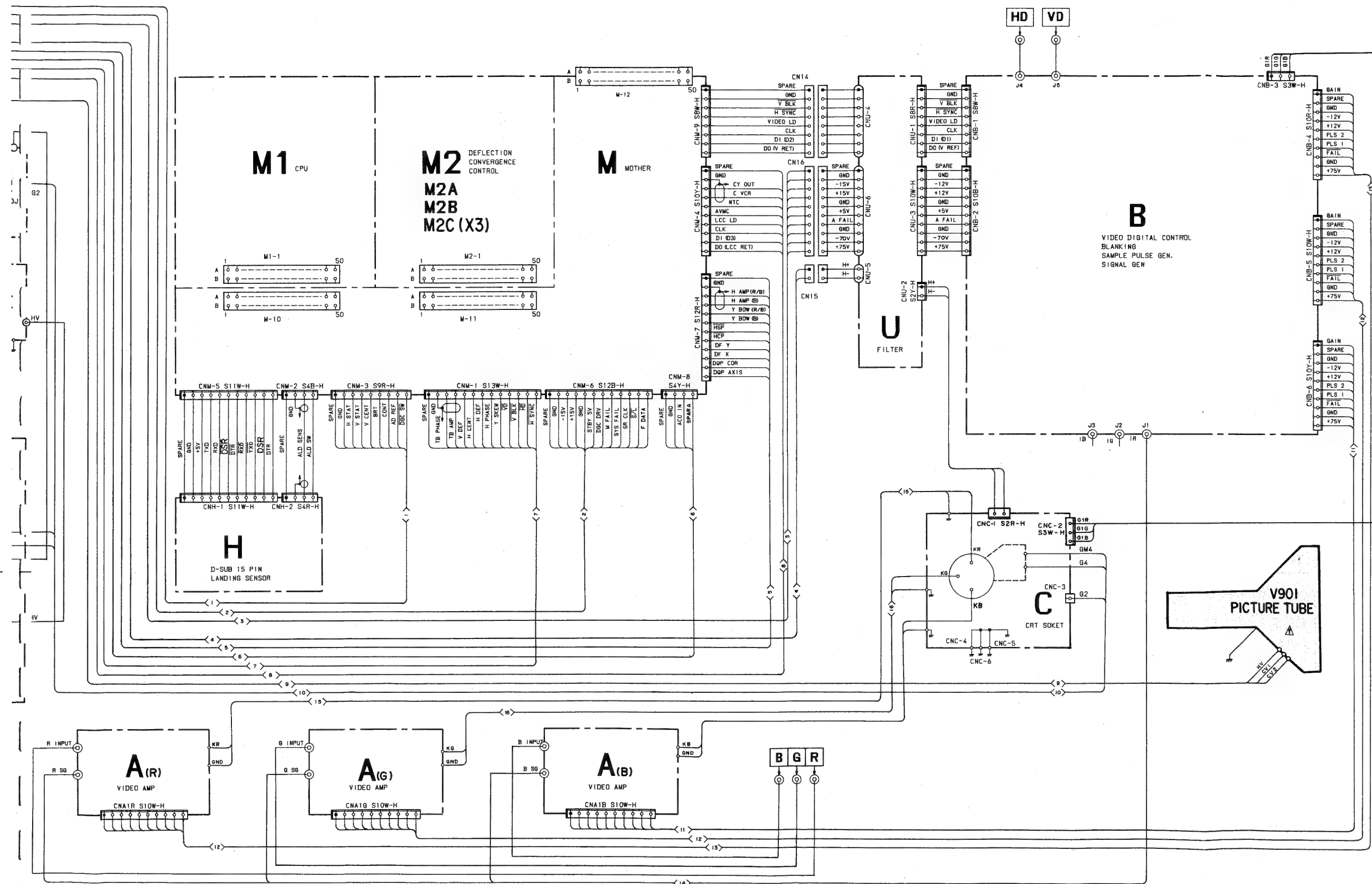




5-2. FRAME SCHEMATIC DIAGRAM (DDM-2801C only, Serial No. up-to 10,020)

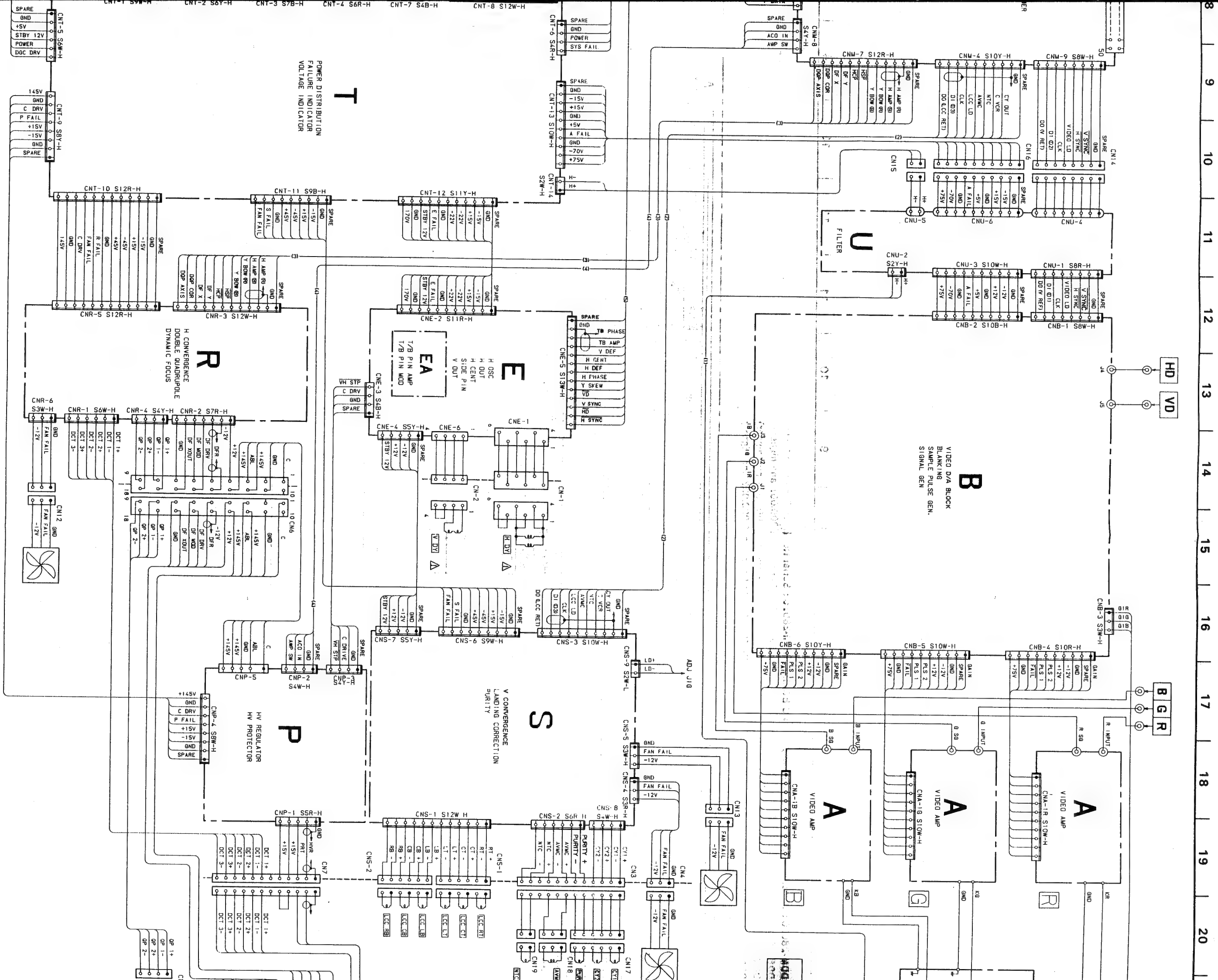


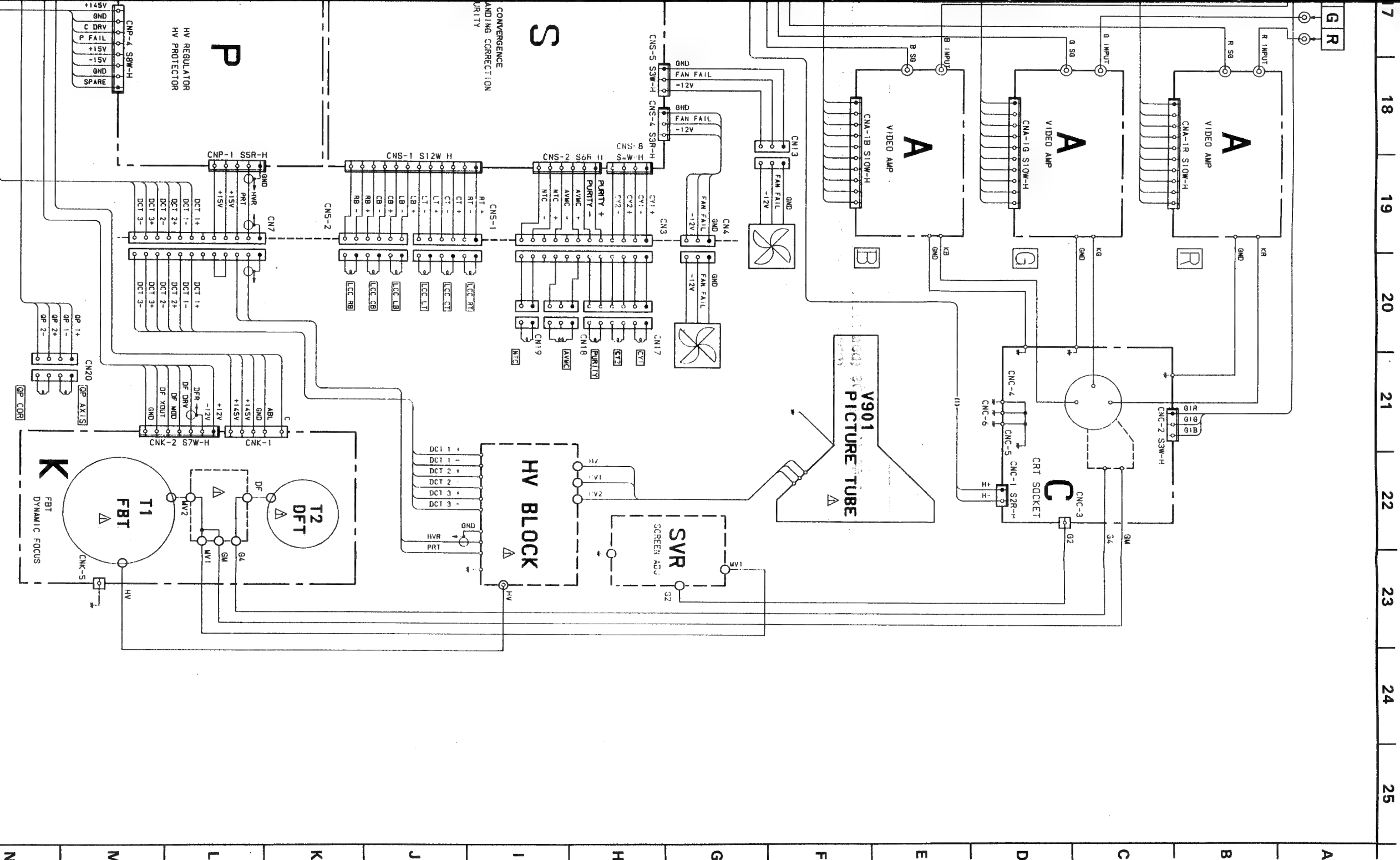





1
2
3
4
5
6
7
8
9








Note:

Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et par une marque  sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

1 2 3

(DDM-2802C; A

(DDM-2802C2

CNA-1 SLOW-H	
75V	10
AND	9

Reference information

- | | | |
|----------|--------|--------------------------|
| RESISTOR | : RN | METAL FILM |
| | : RC | SOLID |
| | : FPRD | NONFLAMMABLE CARBON |
| | : FUSE | NONFLAMMABLE FUSIBLE |
| | : RS | NONFLAMMABLE METAL OXIDE |

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND

- | | | |
|-----------|---------|--------------------------|
| RESISTOR | : RN | METAL FILM |
| | : RC | SOLID |
| | : FRFD | NONFLAMMABLE CARBON |
| | : FUSE | NONFLAMMABLE FUSIBLE |
| | : RS | NONFLAMMABLE METAL OXIDE |
| | : RB | NONFLAMMABLE CEMENT |
| | : RW | NONFLAMMABLE WIREWOUND |
| | : * | ADJUSTMENT RESISTOR |
| COIL | : LF-8L | MICRO INDUCTOR |
| CAPACITOR | : TA | TANTALUM |
| | : PS | STYROL |
| | : PP | POLYPROPYLENE |

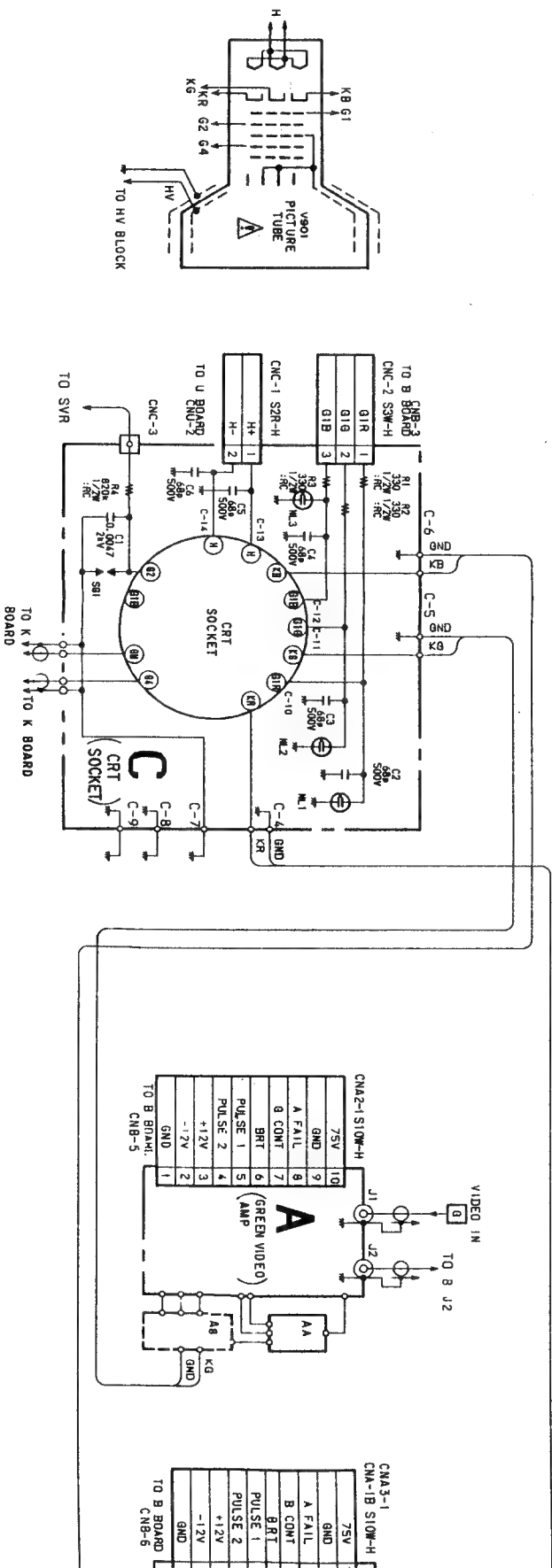
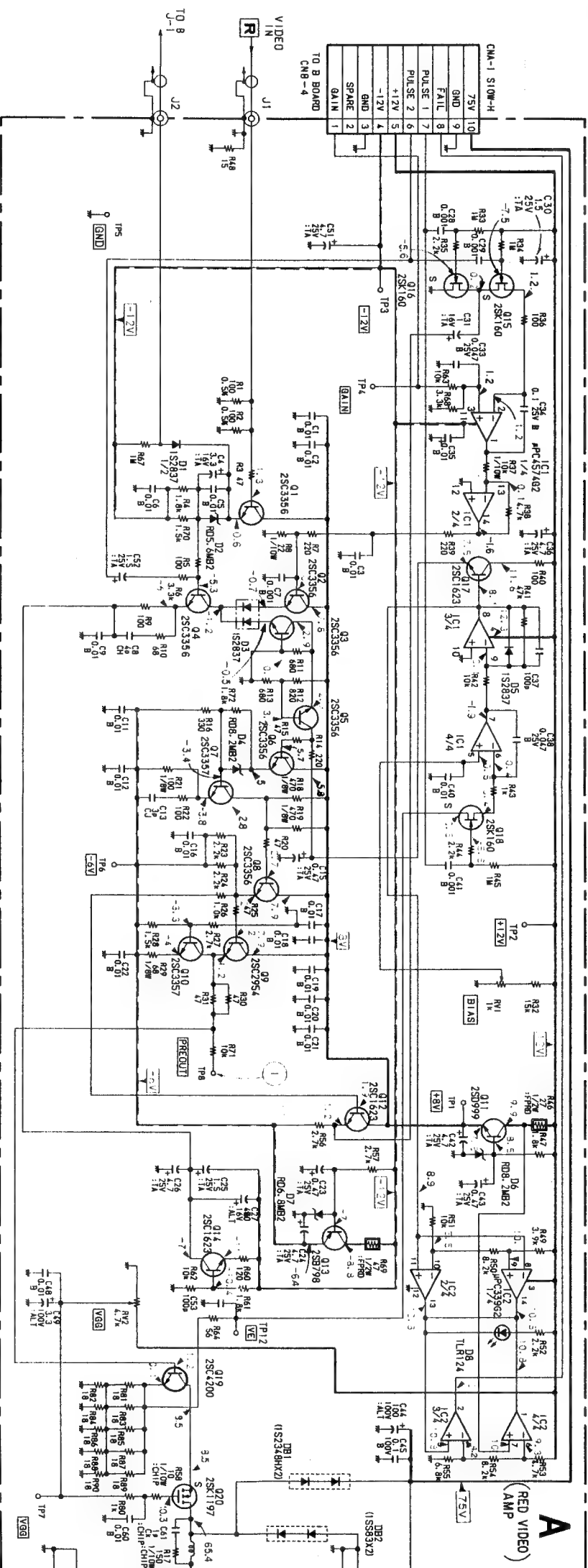
- | | |
|-------|-------------------------|
| : PT | IMYLAR |
| : MPS | METALIZED POLYESTER |
| : MPP | METALIZED POLYPROPYLENE |
| : ALB | BIPOLAR |
| : ALT | HIGH TEMPERATURE |
| : ALR | HIGH RIPPLE |

- Voltages are a reference value as against the ground potential when "Cross hatch 1" of the internal signal selection mode is selected.
- Readings are taken with a 10M Ω digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.

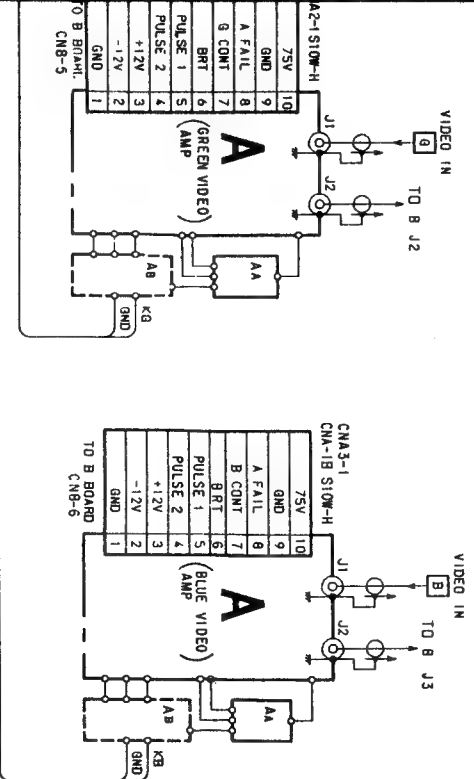
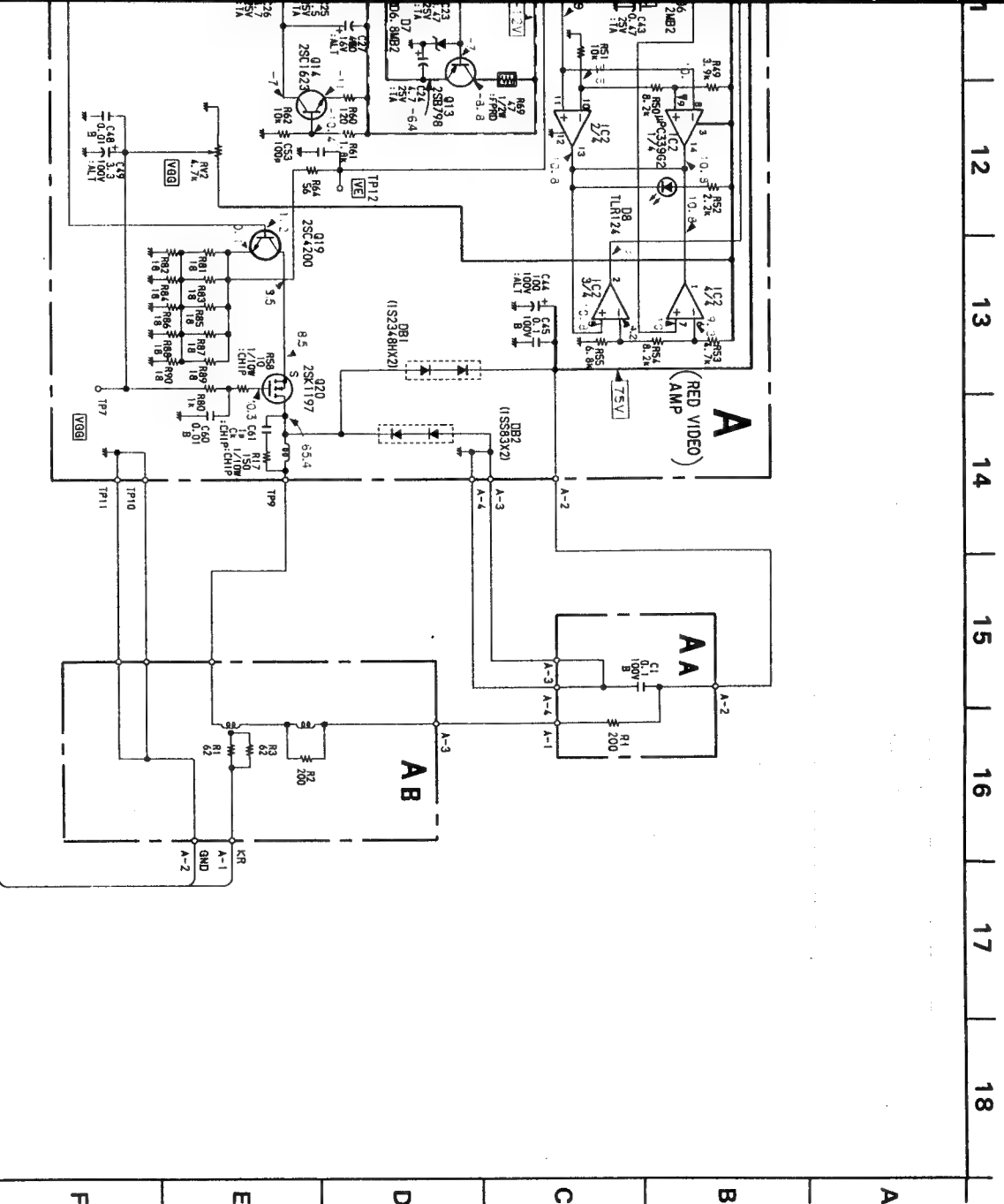
- All voltages are in V.

[illegible]

BOARDS (DDM-2801C; Serial No. 2,000,014 and higher) • C BOARD (DDM-2801C; Serial No. 2,000,019 and higher)
 (DDM-2802C; Serial No. 2,000,001 and higher) (DDM-2802C; Serial No. 2,000,001 and higher)
 (DDM-2801C2; Serial No. 2,000,004 and higher) (DDM-2801C2; Serial No. 2,000,004 and higher)
 (DDM-2802C2; Serial No. 2,000,002 and higher) (DDM-2802C2; Serial No. 2,000,002 and higher)

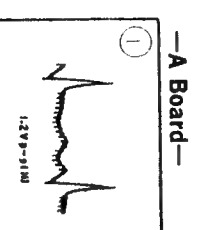


THE RESISTANCE VALUE NOT PARTICULARLY SPECIFIED SHALL BE 1/10W.



—A Board—

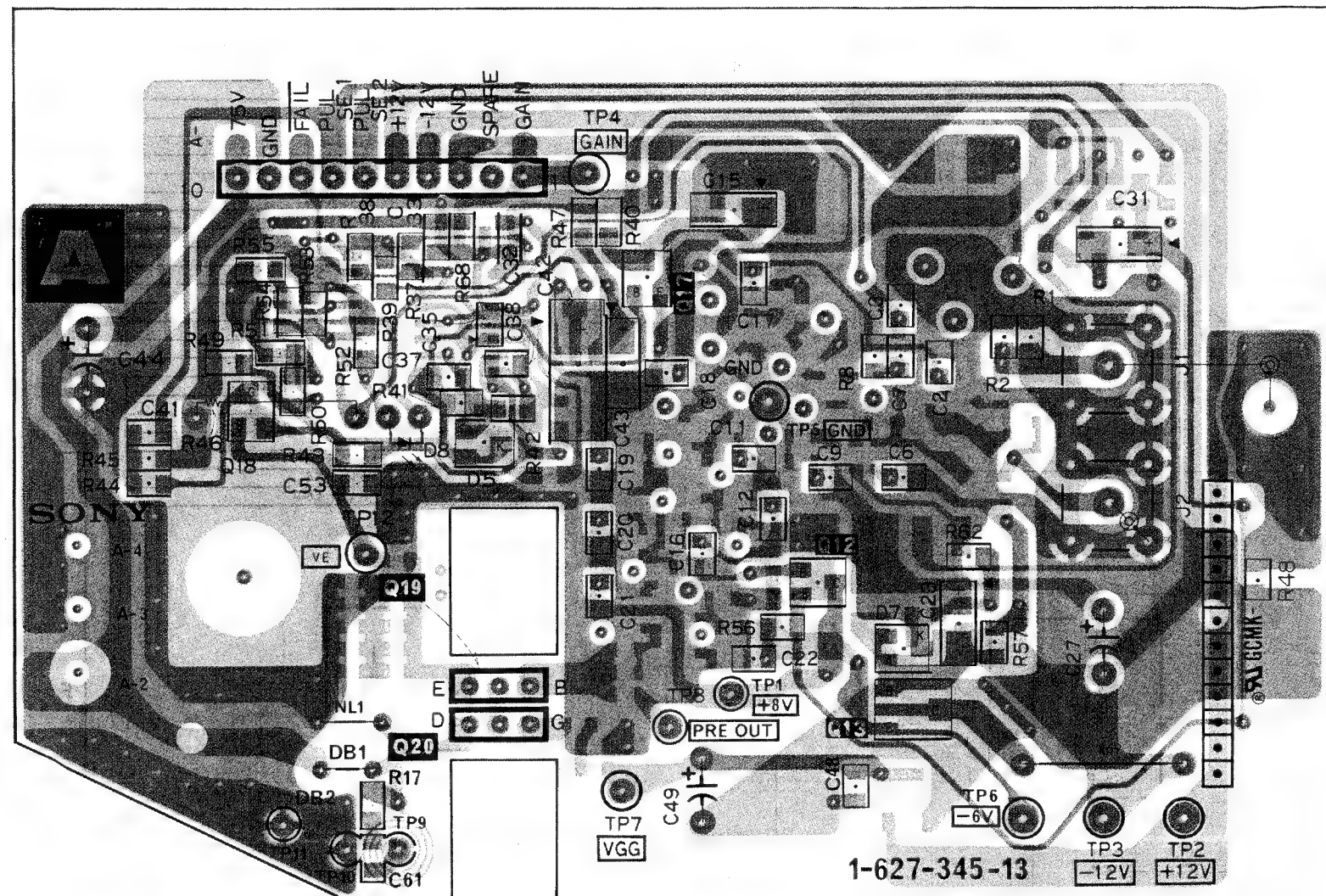
IC1	SAMPLE HOLD
2	FAIL DET
Q1	INPUT BUFF
2	GAIN CONT 1
3	GAIN CONT 2
4	V-I CONV
5	BUFF 1
6	BUFF 2
7	AMP
8	BUFF 3
9	PRE DRIVE
10	CURRENT SOURCE 1
11	+8V REG
12	BUFF 4
13	-6V REG
14	CURRENT SOURCE 2
15	GATE 1
16	GATE 2
17	BUFF 5
18	GATE 3
19	DRIVE
20	FINAL
D1	INPUT SWITCH
2	VOLTAGE SHIFT 1
3	ISOLATION
4	VOLTAGE SHIFT 2
5	CLAMP
6	+8V REG
7	-6V REG
8	FAIL IND



A

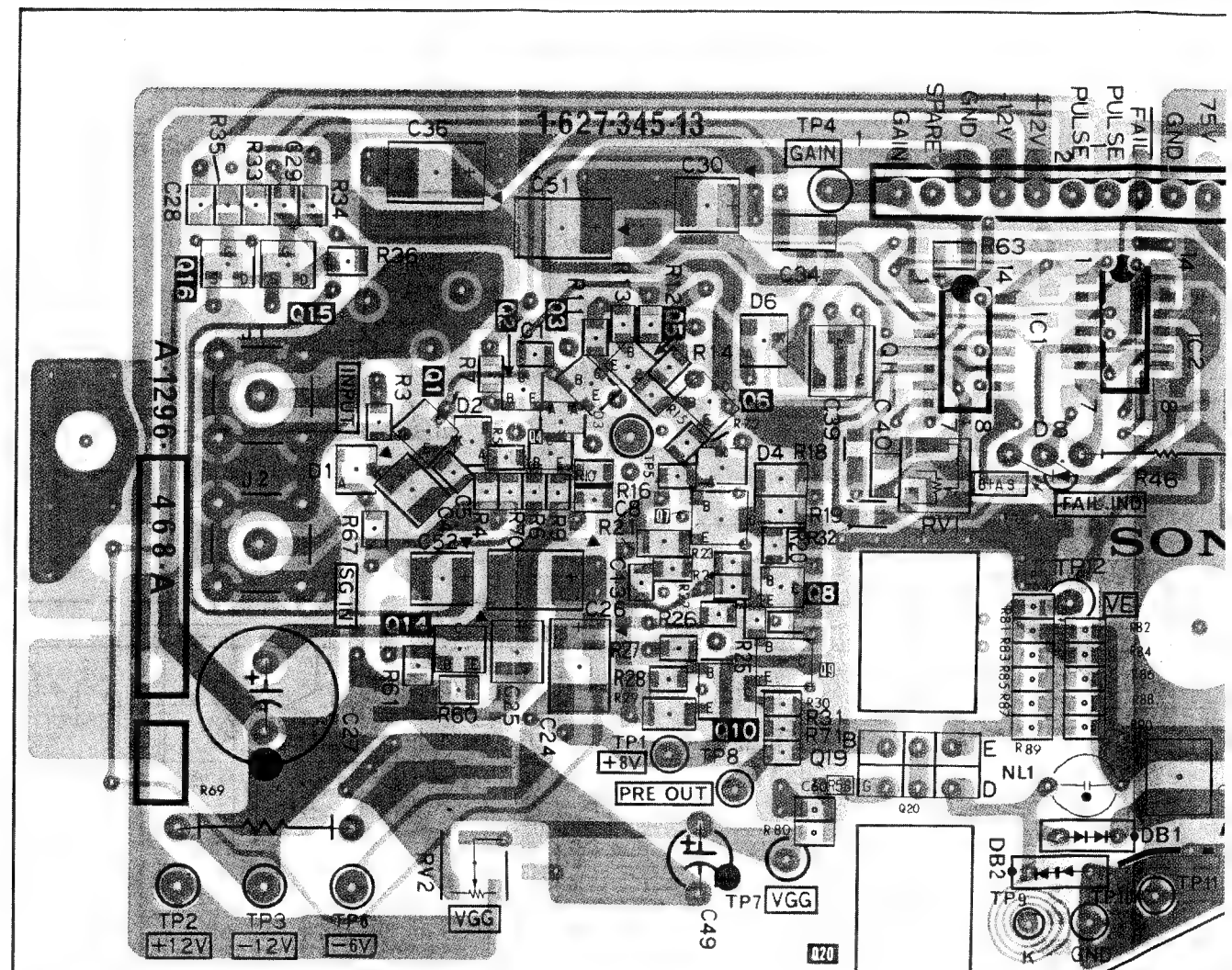
(VIDEO AMP)

—A BOARD— —Component side— (DDM-2801C; Serial No. 2,000,014 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher)
(DDM-2801C2; Serial No. 2,000,004 and higher)
(DDM-2802C2; Serial No. 2,000,002 and higher)



• : Pattern from the side witch enables seeing
• : Pattern of the rear side.

—A BOARD— —Conductor side— (DDM-2801C; Serial No. 2,000,014 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher)
(DDM-2801C2; Serial No. 2,000,004 and higher)
(DDM-2802C2; Serial No. 2,000,002 and higher)



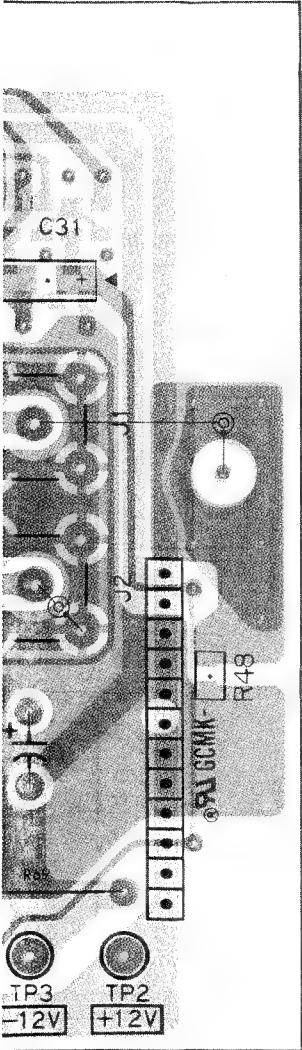
• : Pattern from the side witch enables seeing
• : Pattern of the rear side.

C

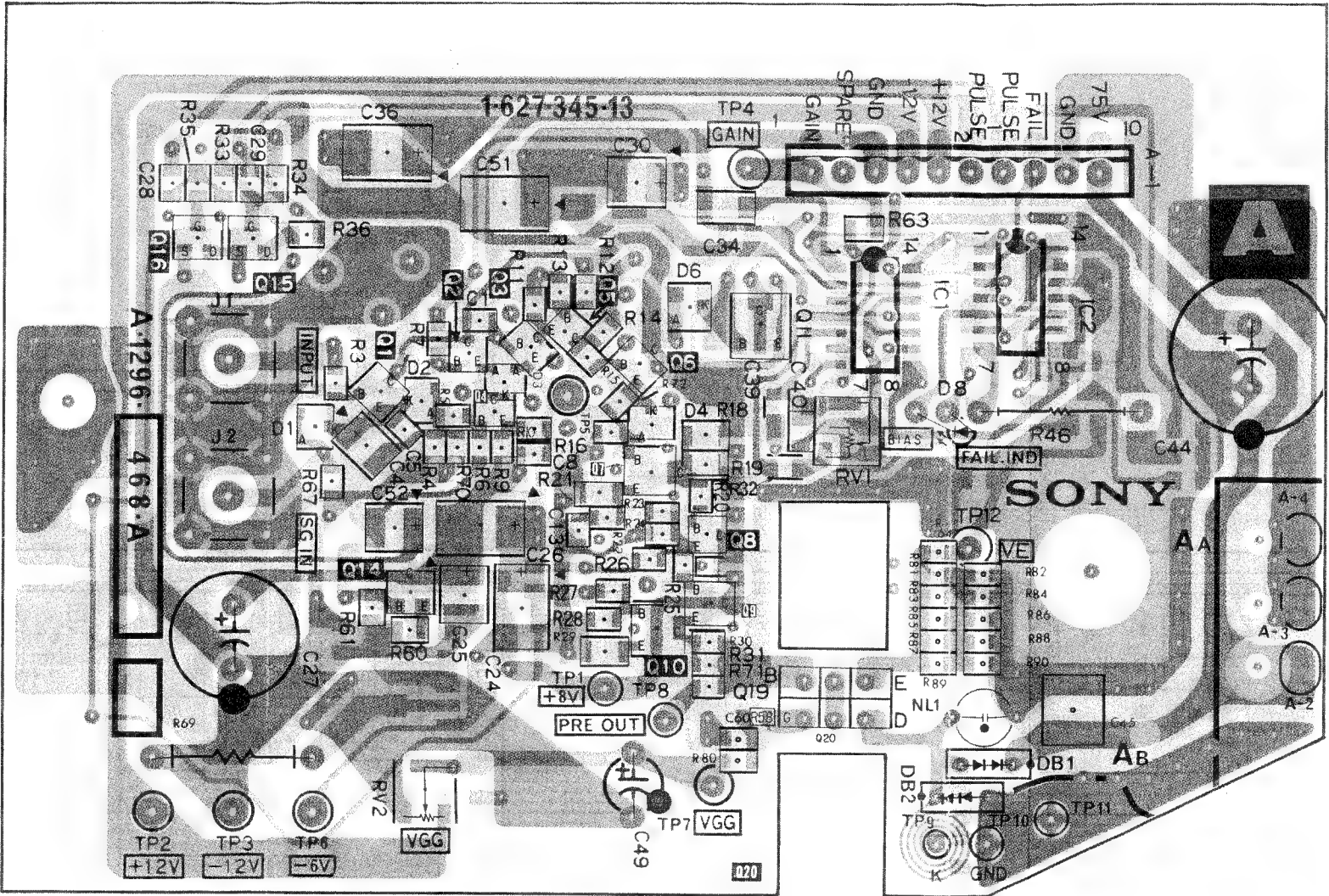
(PICTURE TUBE SOCKET)

—A BOARD— —Conductor side— (DDM-2801C ; Serial No. 2,000,014 and higher)
(DDM-2802C ; Serial No. 2,000,001 and higher)
(DDM-2801C2 ; Serial No. 2,000,004 and higher)
(DDM-2802C2 ; Serial No. 2,000,002 and higher)

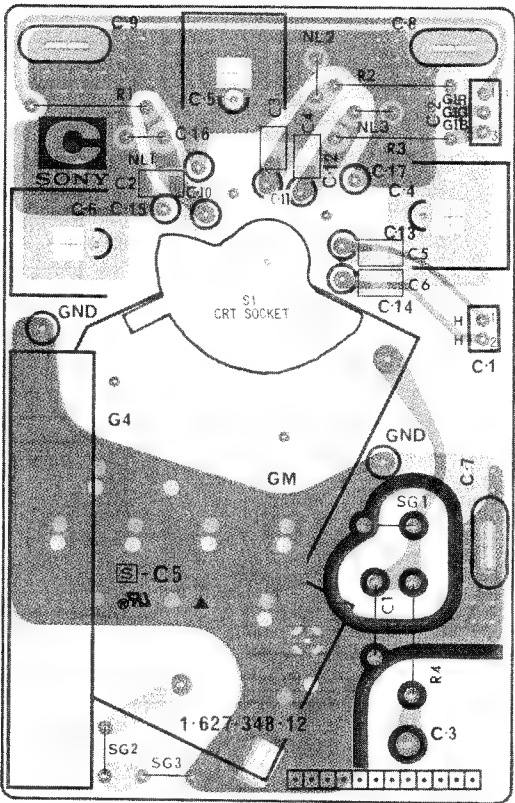
—C BOARD— (DDM-2801C ; Serial No. 2,000,019 and higher)
(DDM-2802C ; Serial No. 2,000,001 and higher)
(DDM-2801C2 ; Serial No. 2,000,004 and higher)
(DDM-2802C2 ; Serial No. 2,000,002 and higher)



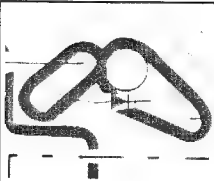
om the side witch enables seeing
the rear side.



- : Pattern from the side witch enables seeing
- : Pattern of the rear side.

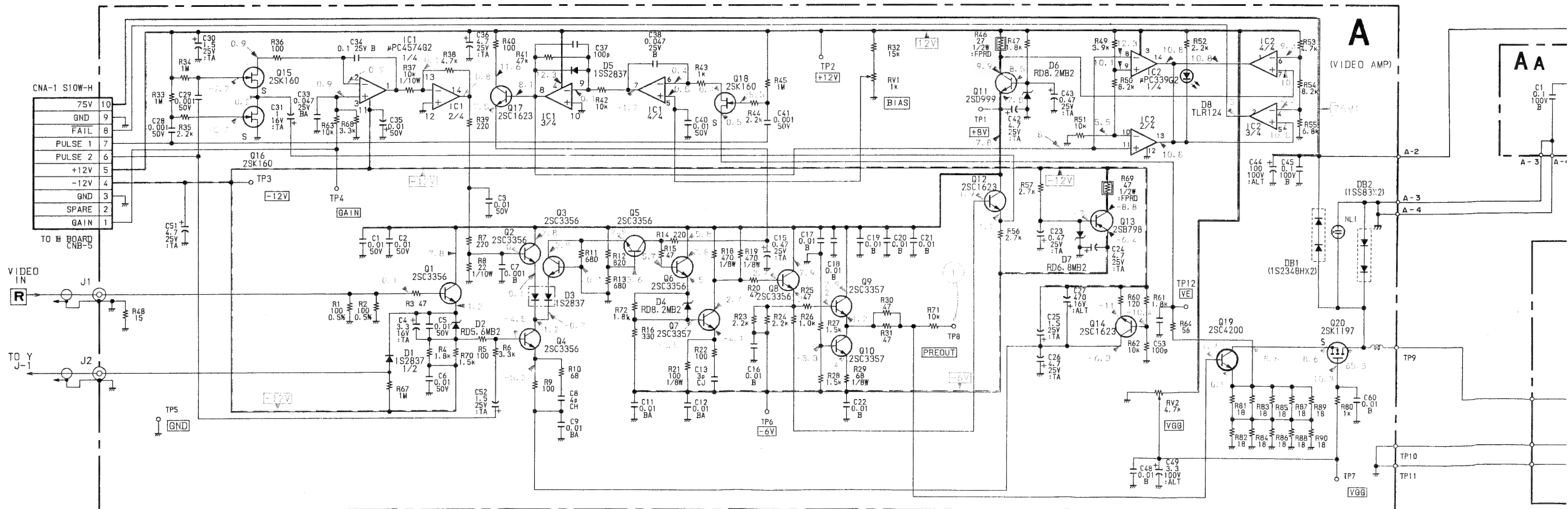
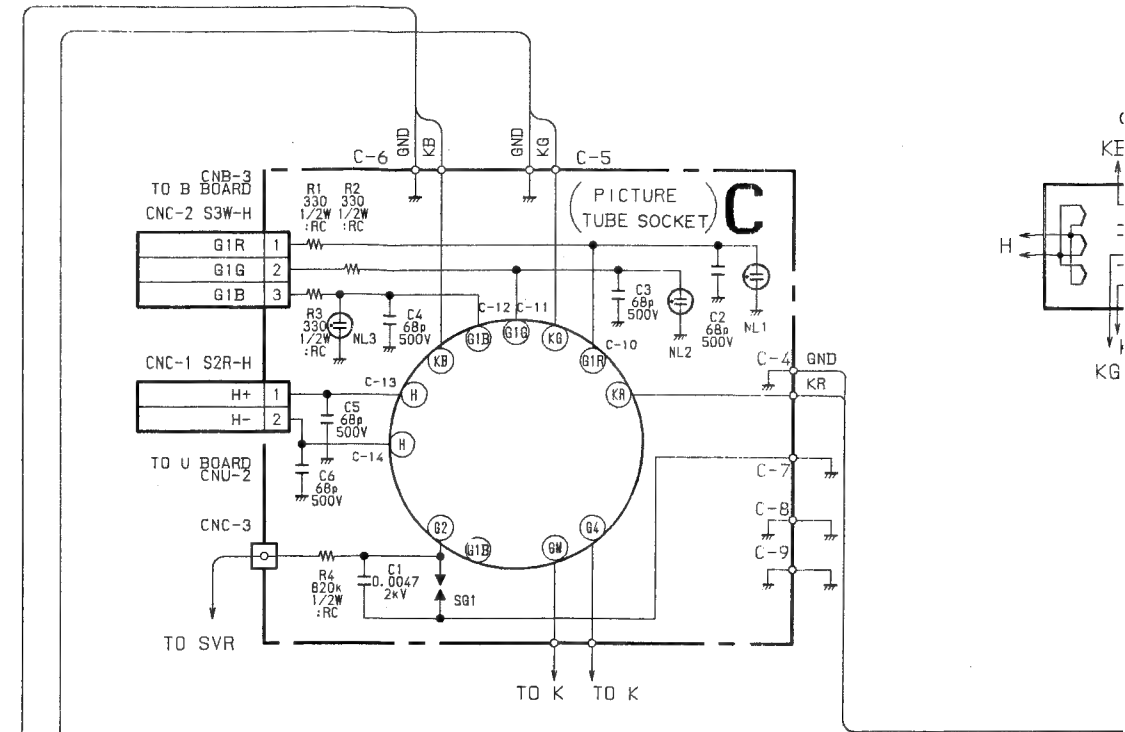


- : Pattern from the side witch enables seeing
- : Pattern of the rear side.



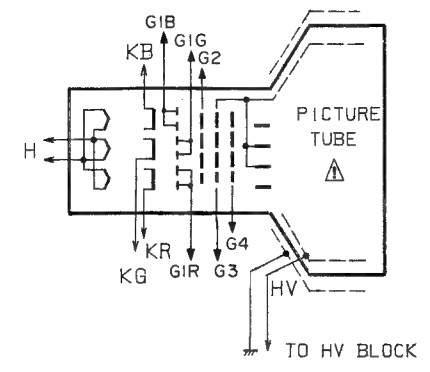
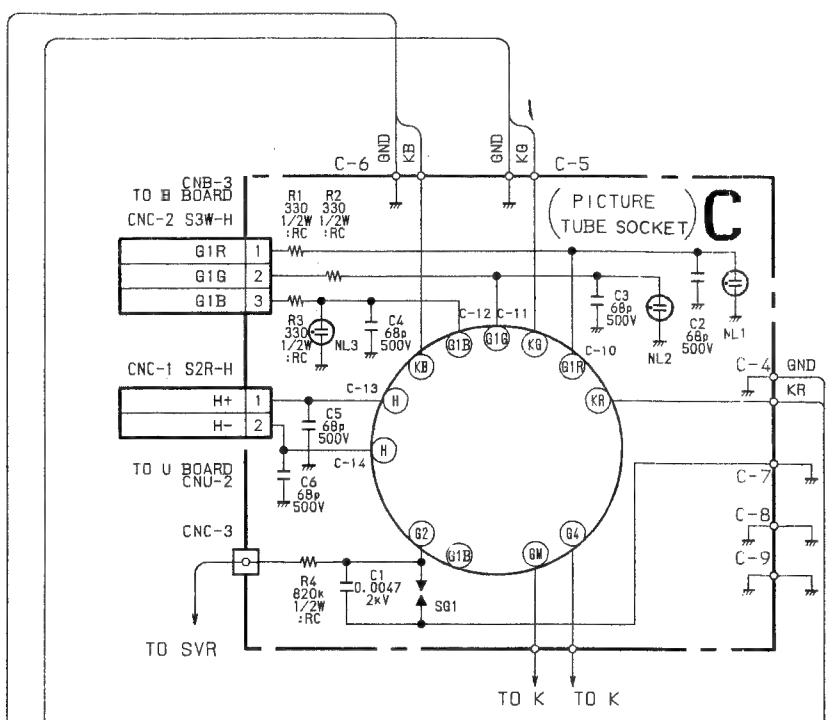
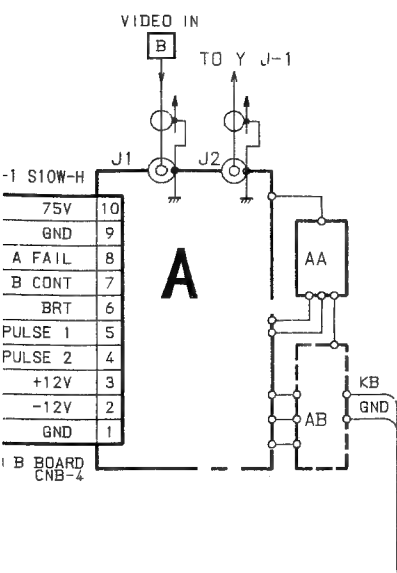
NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

A —
B —
C —
D —
E —
F —
G —
H —
I —
J —



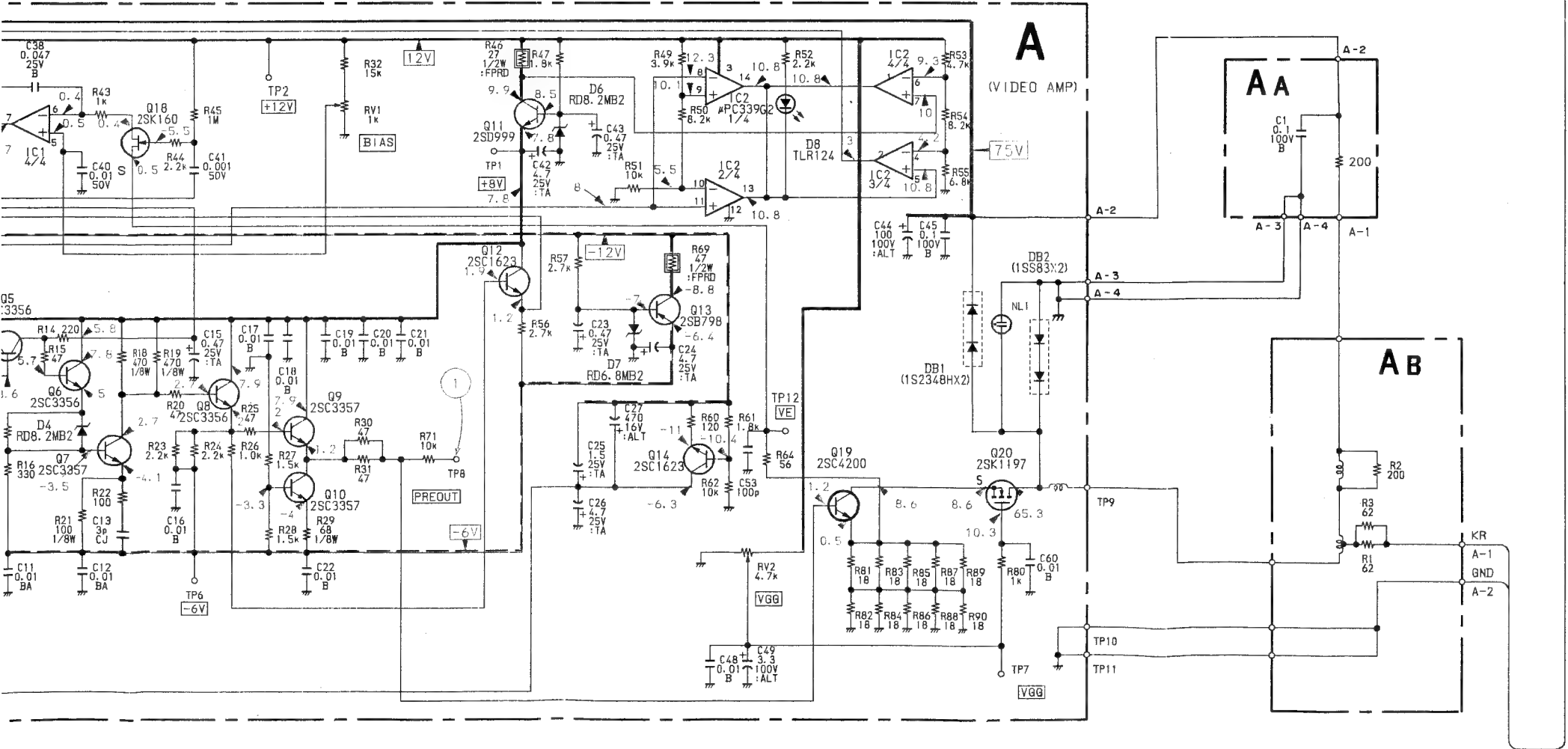
0,003)

0,001)

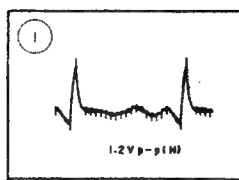


- A Board -

IC1	SAMPLE HOLD
2	FAIL DET
Q1	INPUT BUFF
2	GAIN CONT 1
3	GAIN CONT 2
4	V-I CONV
5	BUFF 1
6	BUFF 2
7	AMP
8	BUFF 3
9	PRE DRIVE
10	CURRENT SOURCE 1
11	+8V REG
12	BUFF 4
13	-6V REG
14	CURRENT SOURCE 2
15	GATE 1
16	GATE 2
17	BUFF 5
18	GATE 3
19	DRIVE
20	FINAL
D1	INPUT SWITCH
2	VOLTAGE SHIFT 1
3	ISOLATION
4	VOLTAGE SHIFT 2
5	CLAMP
6	+8V REG
7	-6V REG
8	FAIL IND

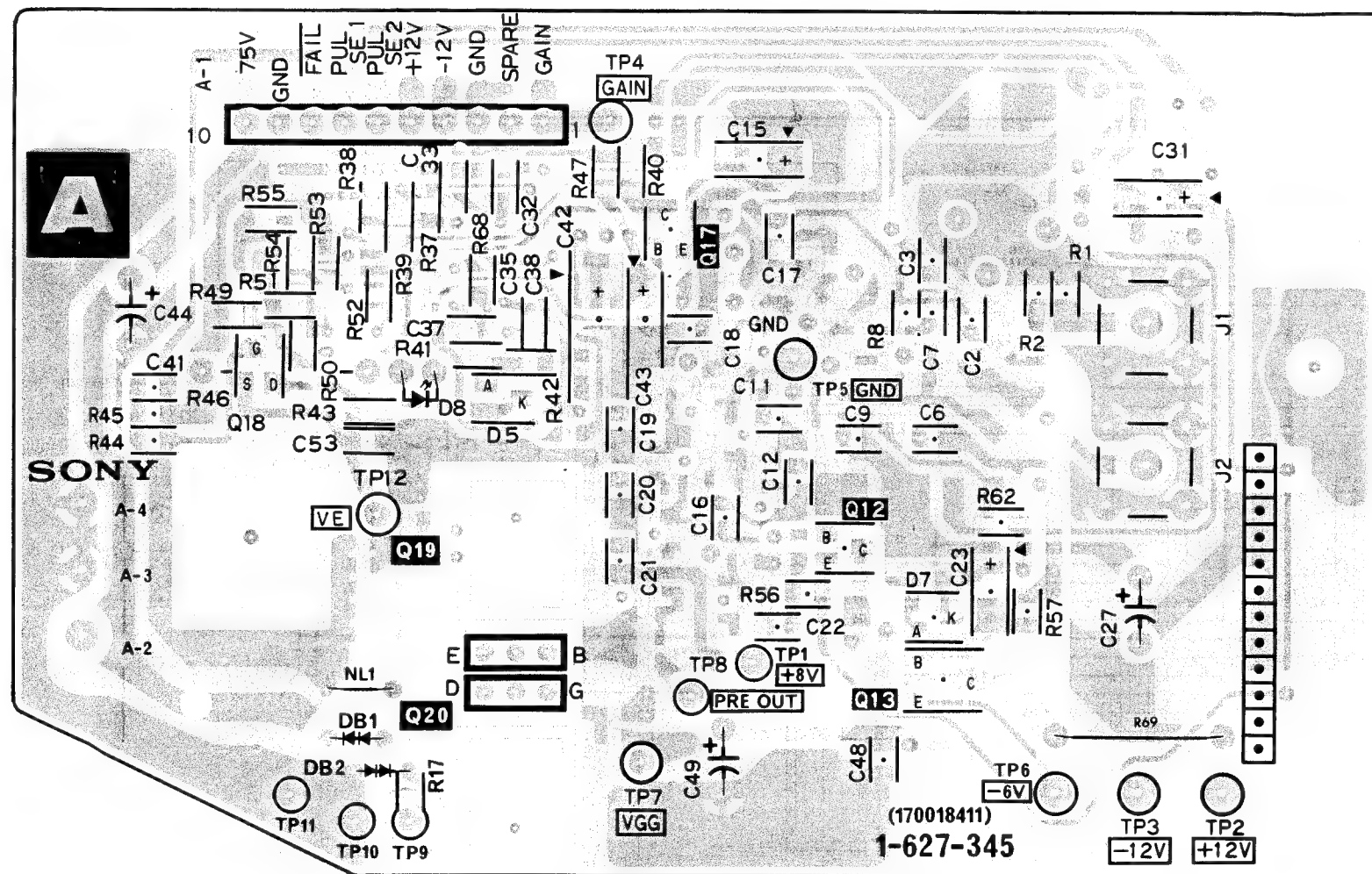


- A Board -



A (VIDEO AMP)

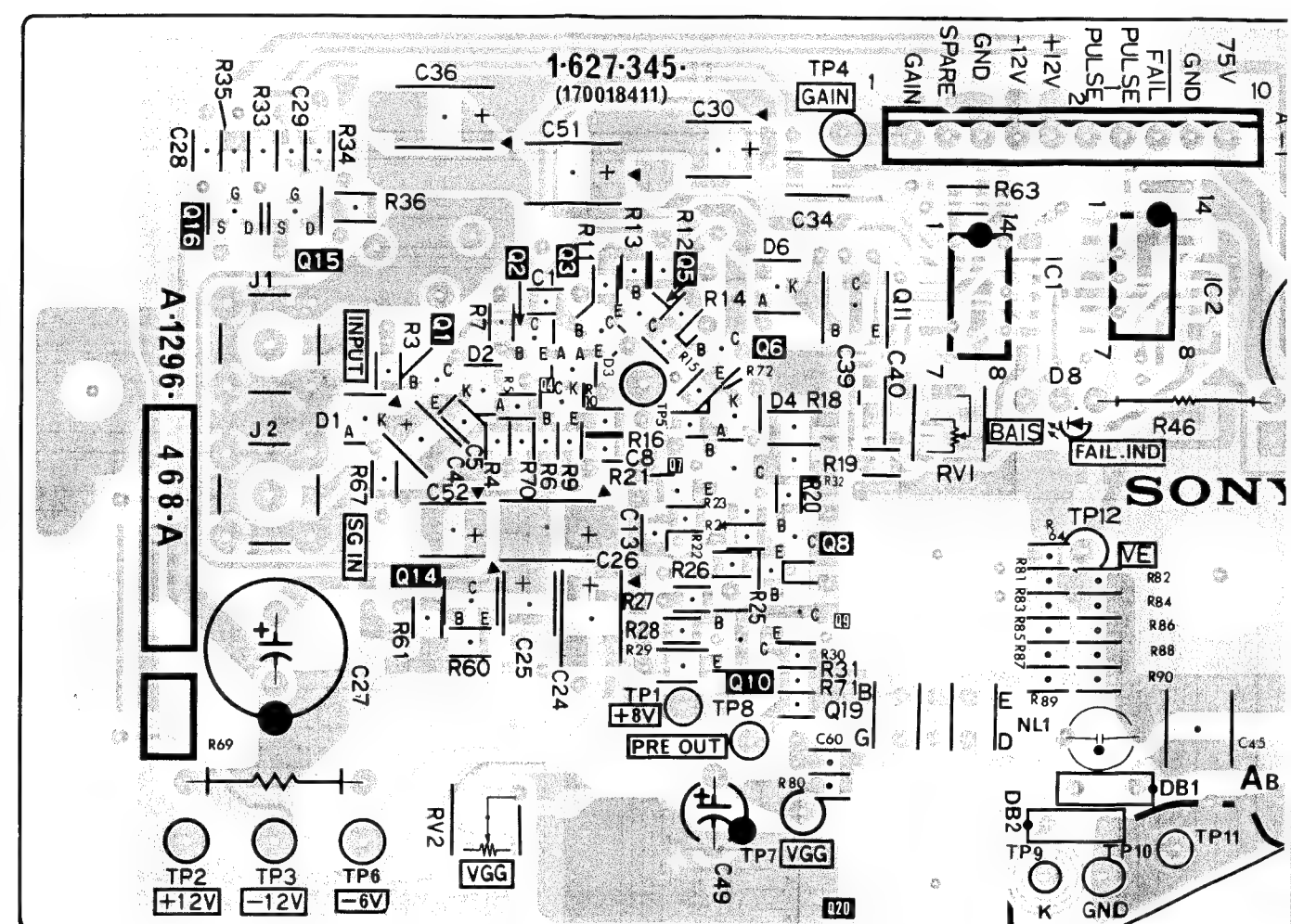
—A BOARD— —Conductor side— (DDM-2801C; Serial No. up-to 2,000,013) (DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C; Serial No. 10,001—10,003) (DDM-2802C2; Serial No. up-to 2,000,001)



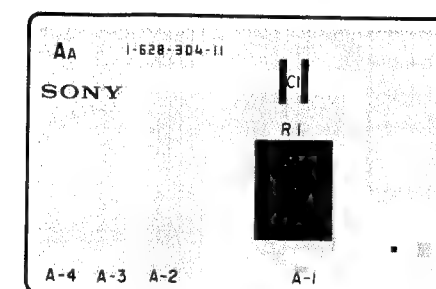
DDM-2801C/2802C
DDM-2801C2/2802C2

A **AA**

—A BOARD— —Component side— (DDM-2801C; Serial No. up-to 2,000,013) (DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C; Serial No. 10,001—10,003) (DDM-2802C2; Serial No. up-to 2,000,001)



—AA Board—



—AB Board—



A **AA** **AB** **C**

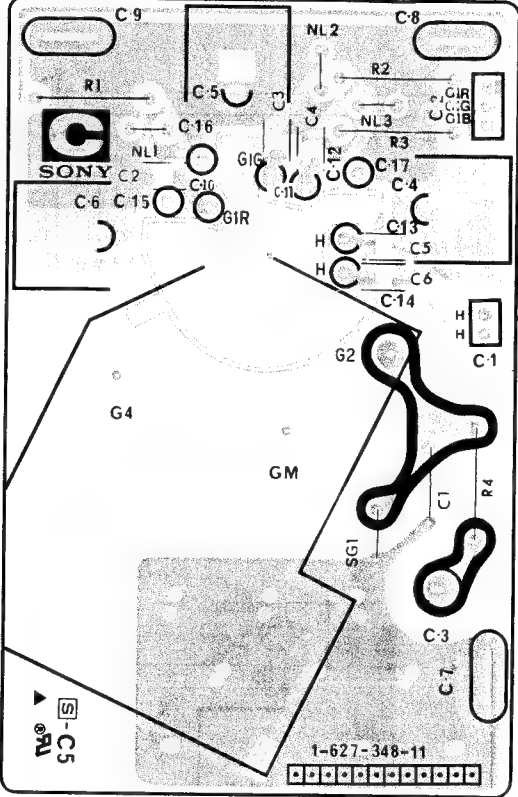
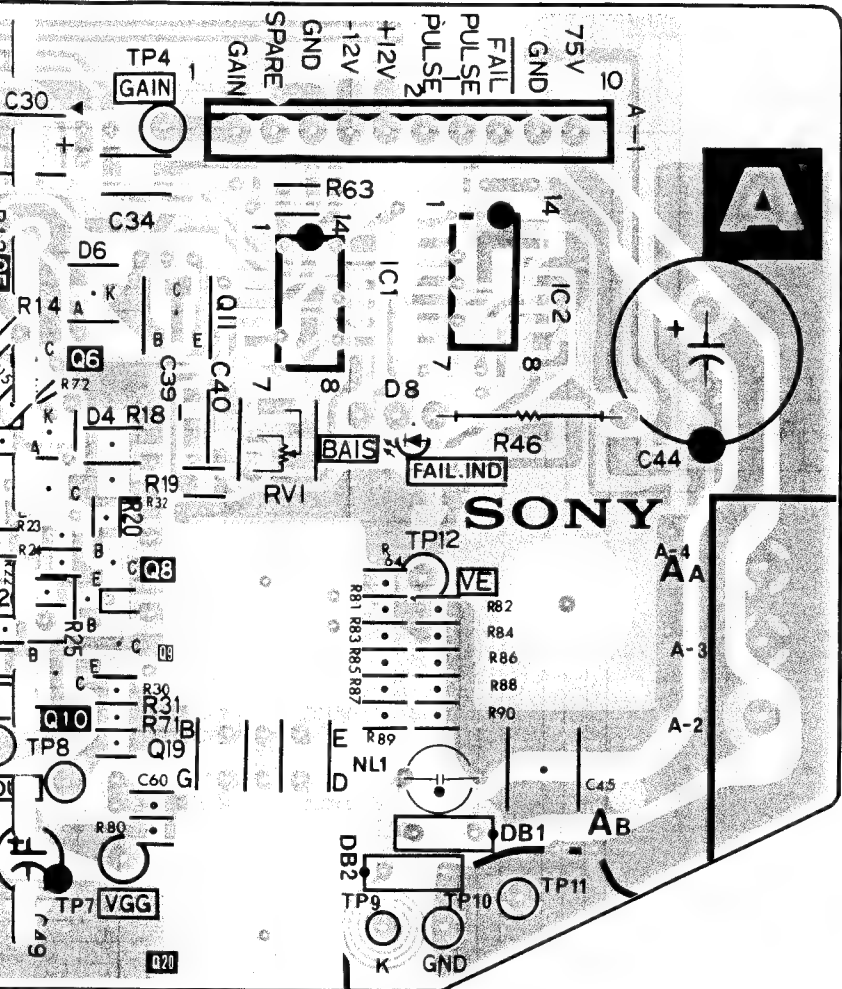
(PICTURE TUBE SOCKET)

DDM-2801C/2802C
DDM-2801C2/2802C2

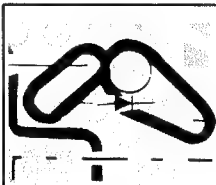
DDM-2801C/2802C
DDM-2801C2/2802C2

No up-to 2,000,013) (DDM-2801C2; Serial No. up-to 2,000,003)
N 10,001—10,003) (DDM-2802C2; Serial No. up-to 2,000,001)

—C BOARD—

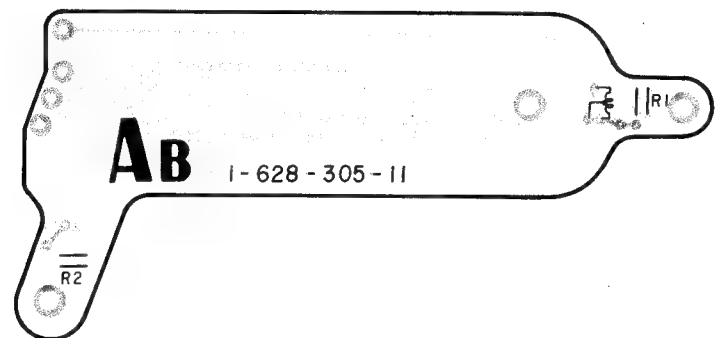
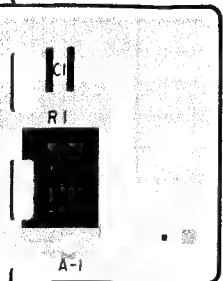


(DDM-2801C; Serial No. up-to 2,000,018)
(DDM-2802C; Serial No. 10,001—10,003)
(DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C2; Serial No. up-to 2,000,001)



NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

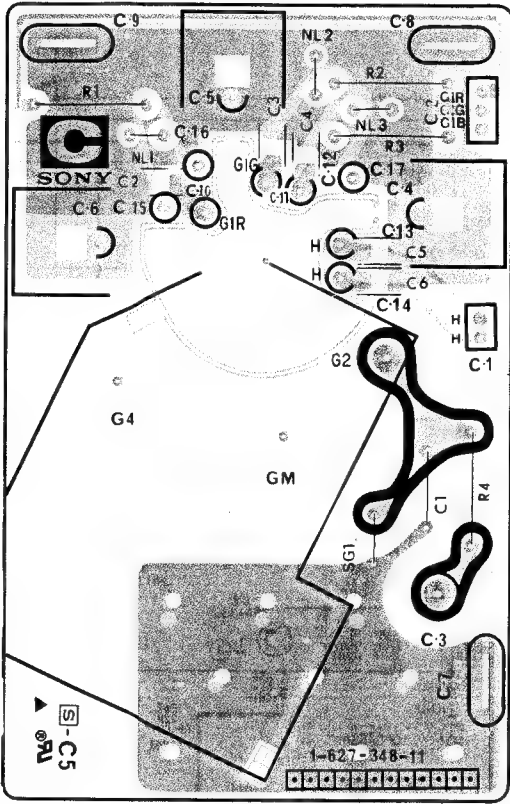
—AB Board—



- : Pattern from the side witch enables seeing
- : Pattern of the rear side.

Q (KET)

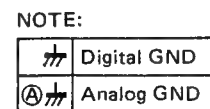
—C BOARD—

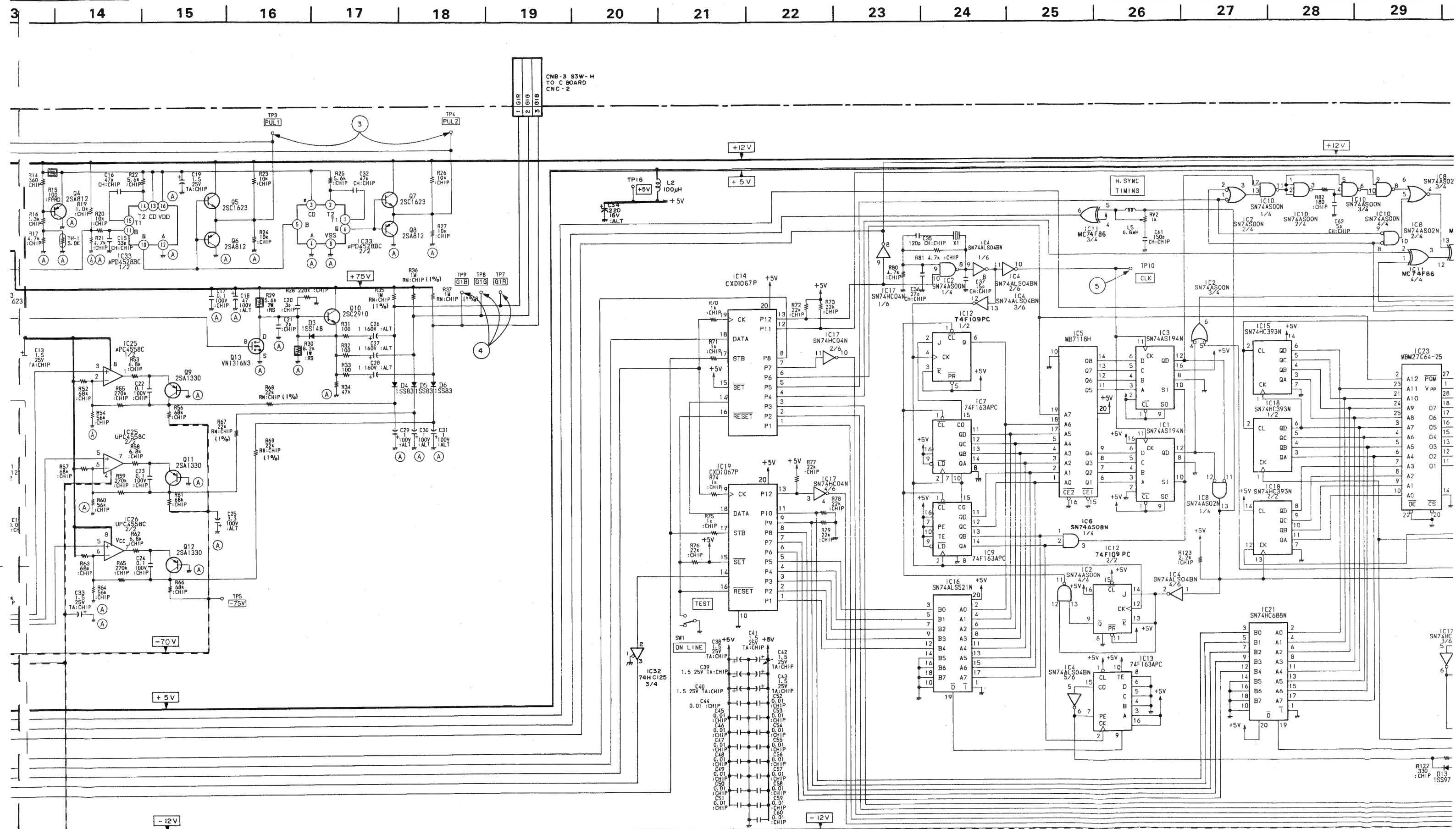


(DDM-2801C ; Serial No. up-to 2,000,018)
(DDM-2802C ; Serial No. 10,001—10,003)
(DDM-2801C2 ; Serial No. up-to 2,000,003)
(DDM-2802C2 ; Serial No. up-to 2,000,001)

NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

- : Pattern from the side witch enables seeing
- : Pattern of the rear side.





DDM-2801C/2802C
DDM-2801C2/2802C2

DDM-2801C/2802C
DDM-2801C2/2802C2

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A

B

C

D

E

F

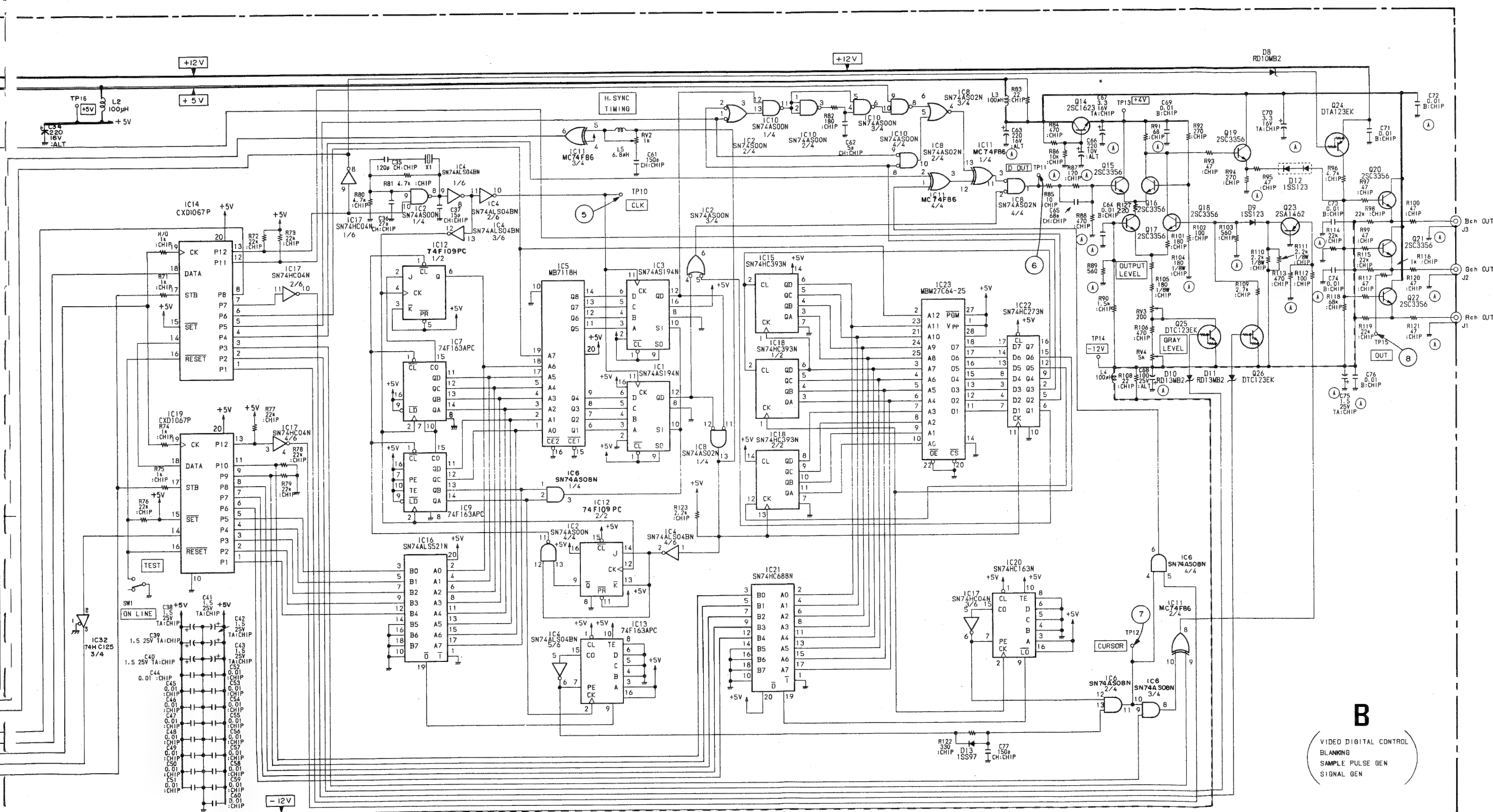
G

H

I

J

W-H
BOARD
2



B
VIDEO DIGITAL CONTROL
BLANKING
SAMPLE PULSE GEN
SIGNAL GEN

B

[VIDEO DIGITAL CONTROL, BLANKING, SAMPLE PULSE GEN, SIGNAL GEN]

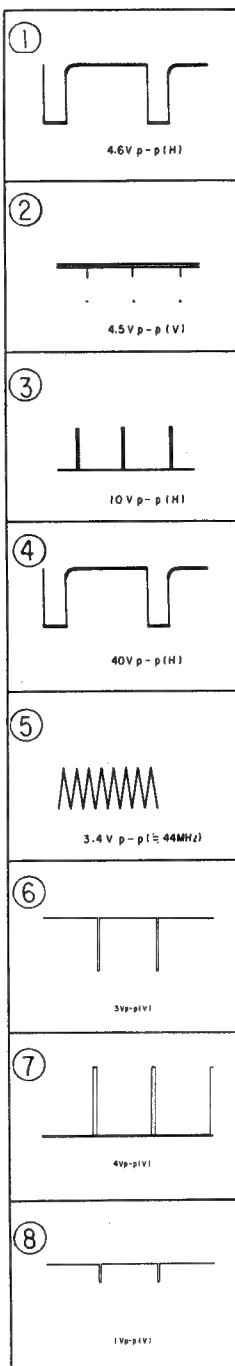
—B Board—

IC1	COUNTOR-1
2	NAND-1
3	COUNTOR-2
4	INV-1
5	H-PATN-MEMORY
6	AND
7	COUNTOR-3
8	NOR
9	COUNTOR-4
10	NAND-2
11	EX-OR
12	COUNTOR-5
13	COUNTOR-6
14	LATCH-SG
15	COUNTOR-7
16	COMPARATOR-H
17	INV-2
18	COUNTOR-8
19	LATCH-CURSOR
20	COUNTOR-9
21	COMPARATOR-V
22	LATCH
23	V-PATN-MEMORY
24	DAC
25	AMP-1
26	AMP-2
27	AMP-3
28	NAND-3
29	SYNC-SWITCH
30	V-BLK-COUNTOR
31	H-BLK-GEN.
32	DRIV
33	PULSE-GEN.
Q1	A-FAIL-OUT
2	DATA-IND-DRIV
3	LEVEL-CONV
4	TEMP. COMPENSATE
5	PULSE DRIVE-1
6	PULSE DRIVE-2
7	PULSE DRIVE-3
8	PULSE DRIVE-4
9	G1-AMP-1
10	BLK-PULSE-DRIV
11	G1-AMP-2
12	G1-AMP-3
13	BLK-PULSE-AMP
14	+4V REG
15	SIG-SW-1
16	SIG-SW-2
17	CORSOR-SW-1
18	CORSOR-SW-2
19	BUFF
20	DRIV-R
21	DRIV-G
22	DRIV-B
23	CORSOR-SW-3
24	BIAS CONT
25	LEVEL CONT
26	CORSOR CONT
D1	+5V REG
2	DATA IND
3	SPEED UP
4	BLK-SW-R
5	BLK-SW-G
6	BLK-SW-B
7	NO SYNC IND
8	SW-1
9	
10	SW-2
11	SW-3
12	SW-4
13	CORSOR SHIFT

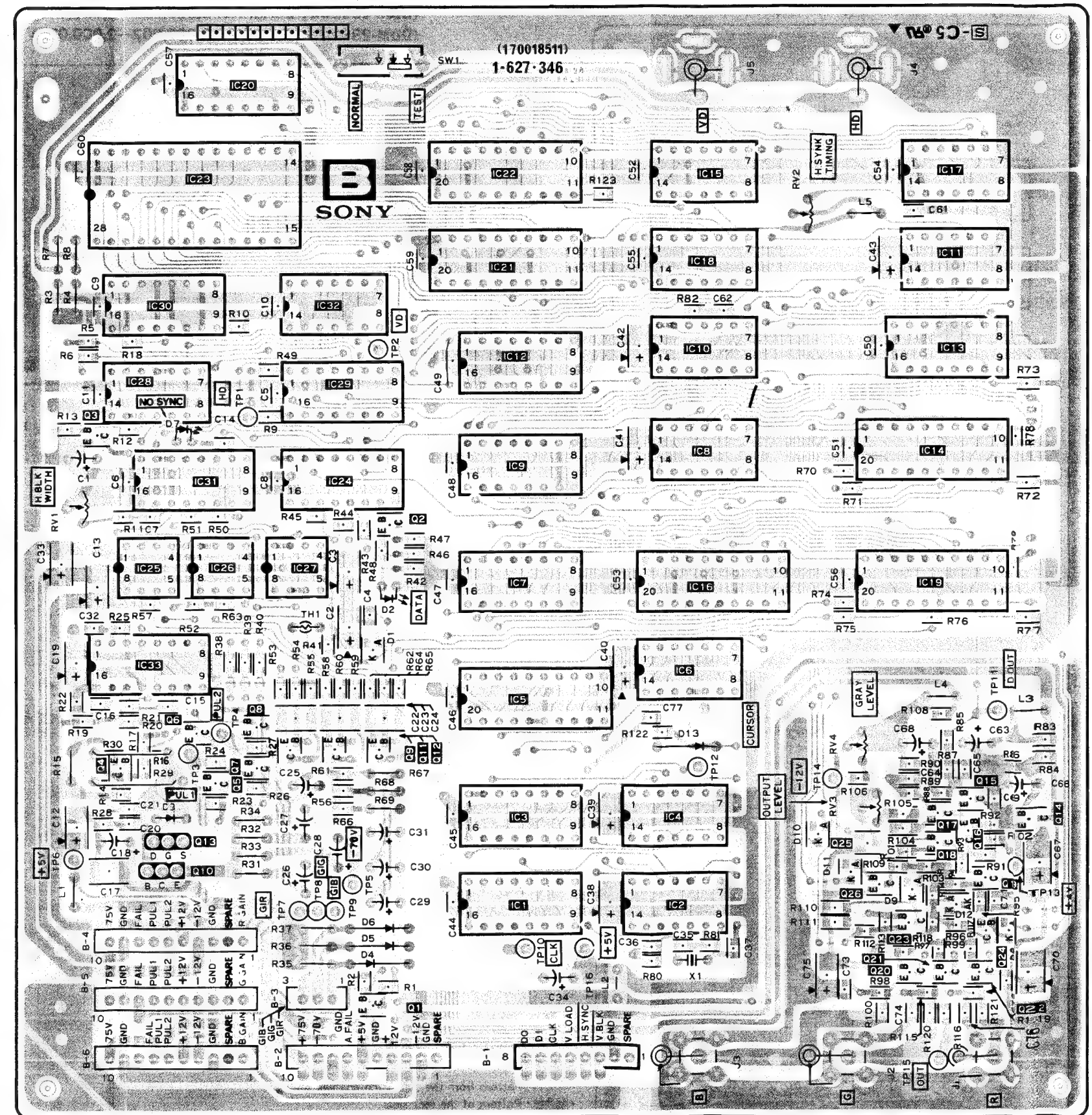
—U Board—

IC1	+12V REG
2	-12V REG

—B Board—



IC	Q	D	RV	TP
20				
23,22,15 17			2	
21 18 11				
30,32				
12 10 13			2	
28,29				
	3		1	
8,14		7		
31,24 9				
	2			
25,26,27				
7,16,19		2		
			1	
33 6				
5				
	6 8			
	9,11,12	13		
	4 7 5			
	15			
3,4	13 17 16	3		
	10 25 18			
1,2				
	26 19			
		6		
	21 23	5		
	20 24	4		
				7,8,9
				10,16
				15

DDM-2801C/2802C
DDM-2801C2/2802C2DDM-2801C/2802C
DDM-2801C2/2802C2—B BOARD— (DDM-2801C, Serial No. up-to 2,000,018) (DDM-2801C2, Serial No. up-to 2,000,003)
(DDM-2802C, Serial No. 10,001—10,003) (DDM-2802C2, Serial No. up-to 2,000,001)

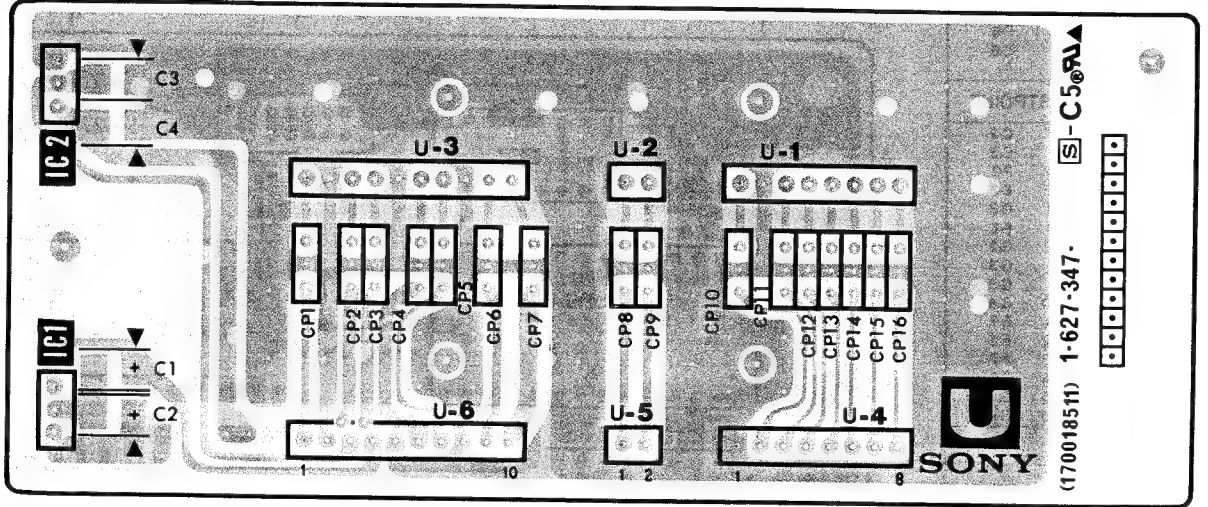
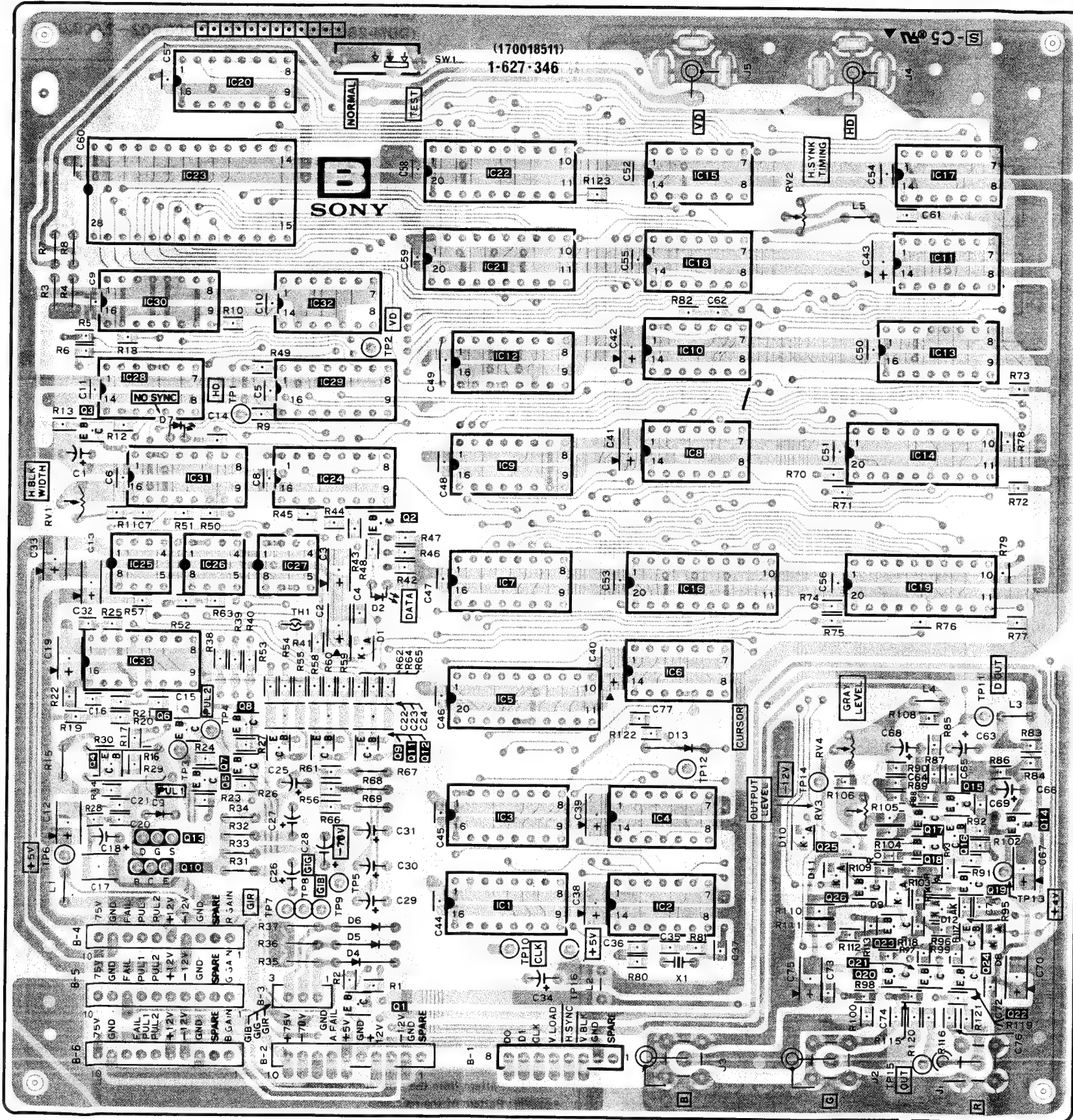
B

U

(FILTER)

—B BOARD— (DDM-2801C, Serial No. up-to 2,000,018) (DDM-2801C2, Serial No. up-to 2,000,003)
(DDM-2802C, Serial No. 10,001—10,003) (DDM-2802C2, Serial No. up-to 2,000,001)

—U BOARD— (DDM-2801C, Serial No. up-to 2,000,018) (DDM-2801C2, Serial No. up-to 2,000,003)
(DDM-2802C, Serial No. 10,001—10,003) (DDM-2802C2, Serial No. up-to 2,000,001)



• : Pattern from the side witch enables seeing
• : Pattern of the rear side

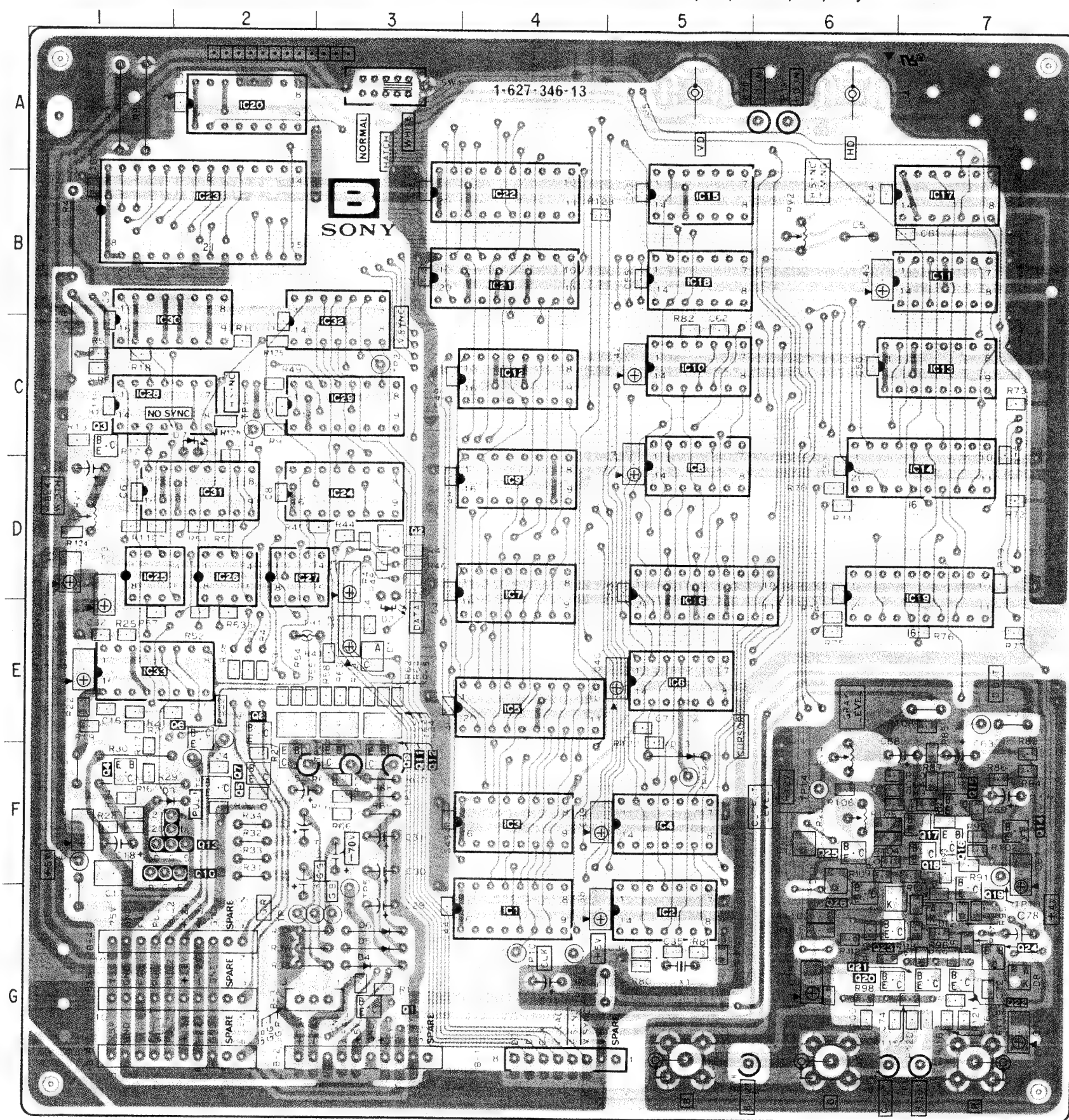
B

(VIDEO DIGITAL CONTROL, BLANKING, SUMPLE PULSE GEN, SIGNAL GEN)

—B BOARD— (DDM-2801C; Serial No. 2,000,019—2,000,043) (DDM-2801C2; Serial No. 2,000,004—2,000,049)
(DDM-2802C; Serial No. 2,000,001—2,000,020) (DDM-2802C2; Serial No. 2,000,002—2,000,012)

—B Board—

IC		RV3 RV4	F-6 E-6
IC1	G-4	TESTPOINT	TP1 C-2 TP2 C-3 TP3 F-2 TP4 E-2 TP5 G-3 TP6 F-1 TP7 G-2 TP8 G-3 TP9 G-3 TP10 G-4 TP11 E-7 TP12 F-5 TP13 F-7 TP14 F-6 TP15 G-7 TP16 G-4
IC2	G-5		
IC3	F-4		
IC4	F-5		
IC5	E-4		
IC6	E-5		
IC7	D-4		
IC8	D-5		
IC9	D-4		
IC10	C-5		
IC11	B-7		
IC12	C-4		
IC13	C-7		
IC14	D-7		
IC15	B-5		
IC16	D-5		
IC17	B-7		
IC18	B-5		
IC19	D-7		
IC20	A-2		
IC21	B-4		
IC22	B-4		
IC23	B-2		
IC24	D-3		
IC25	D-1		
IC26	D-2		
IC27	D-2		
IC28	C-1		
IC29	C-3		
IC30	C-1		
IC31	D-2		
IC32	C-3		
IC33	E-1		
TRANSISTOR			
Q1	G-3		
Q2	D-2		
Q3	C-1		
Q4	F-1		
Q5	F-2		
Q6	E-2		
Q7	F-2		
Q8	E-2		
Q9	F-2		
Q10	F-2		
Q11	F-3		
Q12	F-3		
Q13	F-3		
Q14	F-7		
Q15	F-7		
Q16	F-7		
Q17	F-7		
Q18	F-7		
Q19	F-7		
Q20	G-6		
Q21	G-7		
Q22	G-2		
Q23	G-7		
Q24	G-7		
Q25	F-6		
Q26	G-6		
DIODE			
D1	E-3		
D2	D-3		
D3	F-1		
D4	G-3		
D5	G-3		
D6	G-3		
D7	C-2		
D8	G-7		
D9	G-6		
D10	F-6		
D11	F-6		
D12	G-7		
D13	E-5		
VARIABLE RESISTOR			
RV1	D-1		
RV2	B-6		

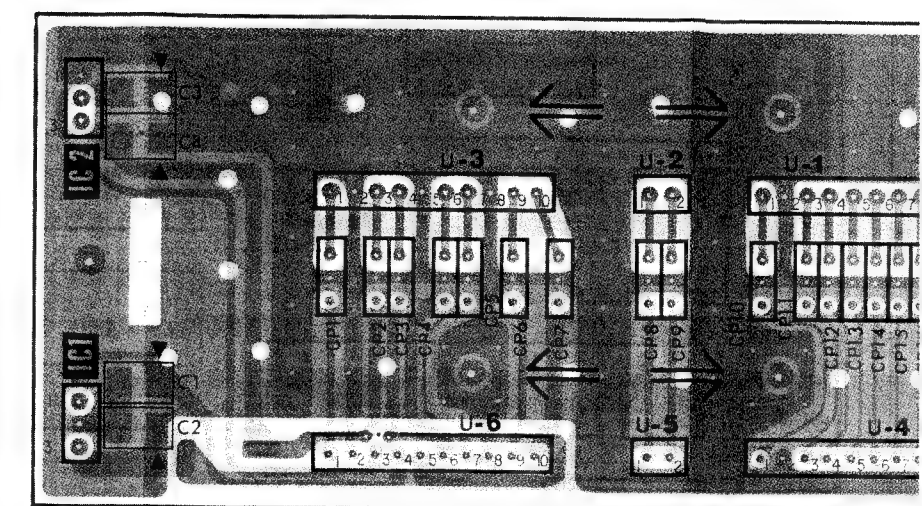


B

U

(FILTER)

—U BOARD— (DDM-2801C; Serial No. 2,000,019—2,000,043)
(DDM-2802C; Serial No. 2,000,001—2,000,020)
(DDM-2801C2; Serial No. 2,000,004—2,000,049)
(DDM-2802C2; Serial No. 2,000,002—2,000,012)



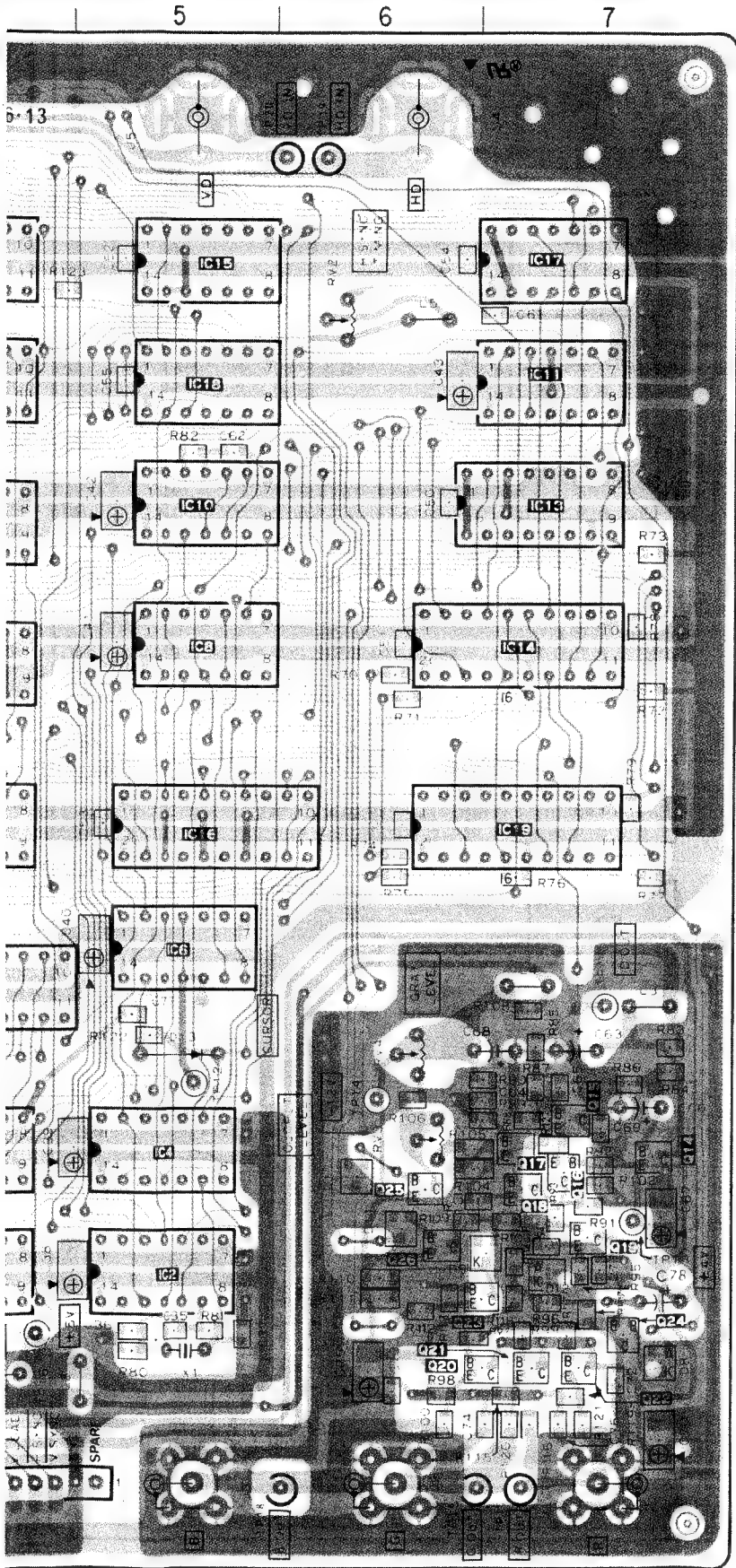
• : Pattern from the side with enables seeing
• : Pattern of the rear side.

B

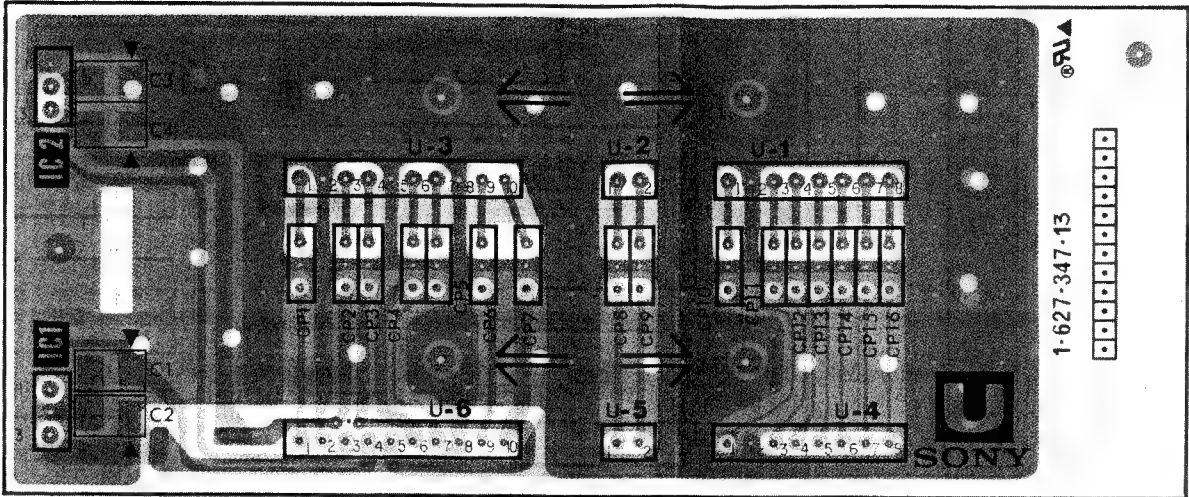
U

(FILTER)

1C2 ; Serial No. 2,000,004—2,000,049)
2C2 ; Serial No. 2,000,002—2,000,012)



—U BOARD— (DDM-2801C ; Serial No. 2,000,019—2,000,043)
(DDM-2802C ; Serial No. 2,000,001—2,000,020)
(DDM-2801C2 ; Serial No. 2,000,004—2,000,049)
(DDM-2802C2 ; Serial No. 2,000,002—2,000,012)

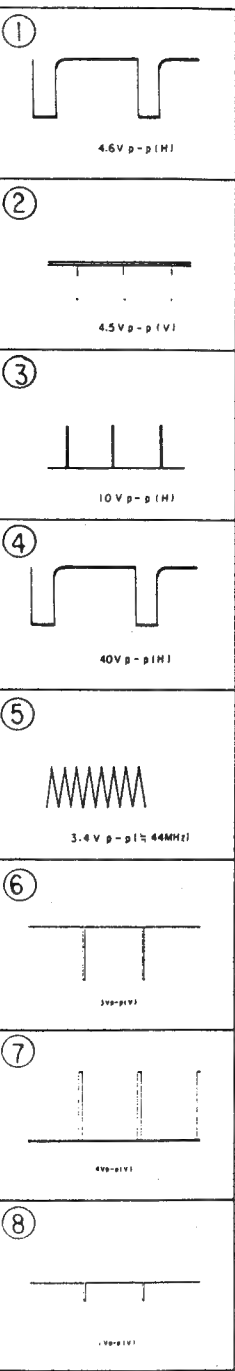


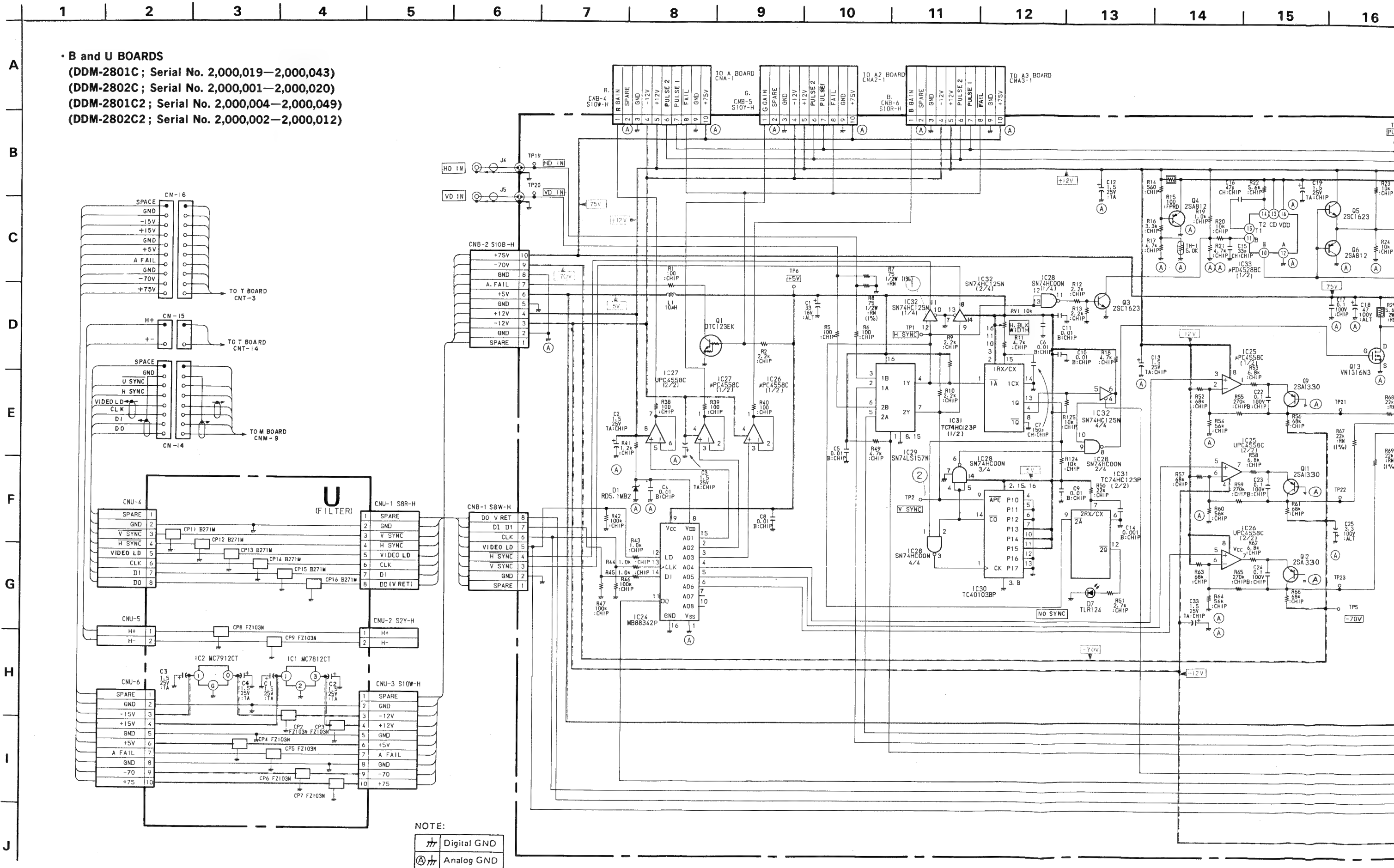
• : Pattern from the side witch enables seeing
 • : Pattern of the rear side.

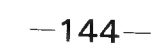
—B Board—

IC1	COUNTOR-1
2	NAND-1
3	COUNTOR-2
4	INV-1
5	H-PATN-MEMORY
6	AND
7	COUNTOR-3
8	NOR
9	COUNTOR-4
10	NAND-2
11	EX-OR
12	COUNTOR-5
13	COUNTOR-6
14	LATCH-SG
15	COUNTOR-7
16	COMPARATOR-H
17	INV-2
18	COUNTOR-8
19	LATCH-CURSOR
20	COUNTOR-9
21	COMPARATOR-V
22	LATCH
23	V-PATN-MEMORY
24	DAC
25	AMP-1
26	AMP-2
27	AMP-3
28	NAND-3
29	SYNC-SWITCH
30	V-BLK-COUNTOR
31	H-BLK-GEN.
32	DRIV
33	PULSE-GEN.
Q1	A-FAIL-OUT
2	DATA-IND-DRIV
3	LEVEL-CONV
4	TEMP. COMPENSATE
5	PULSE DRIVE-1
6	PULSE DRIVE-2
7	PULSE DRIVE-3
8	PULSE DRIVE-4
9	G1-AMP-1
10	BLK-PULSE-DRIV
11	G1-AMP-2
12	G1-AMP-3
13	BLK-PULSE-AMP
14	+4V REG
15	SIG-SW-1
16	SIG-SW-2
17	CORSOR-SW-1
18	CORSOR-SW-2
19	BUFF
20	DRIV-R
21	DRIV-G
22	DRIV-B
23	CORSOR-SW-3
24	BIAS CONT
25	LEVEL CONT
26	CORSOR CONT
D1	+5V REG
2	DATA IND
3	SPEED UP
4	BLK-SW-R
5	BLK-SW-G
6	BLK-SW-B
7	NO SYNC IND
8	SW-1
9	
10	SW-2
11	SW-3
12	SW-4
13	CORSOR SHIFT

—B Board—







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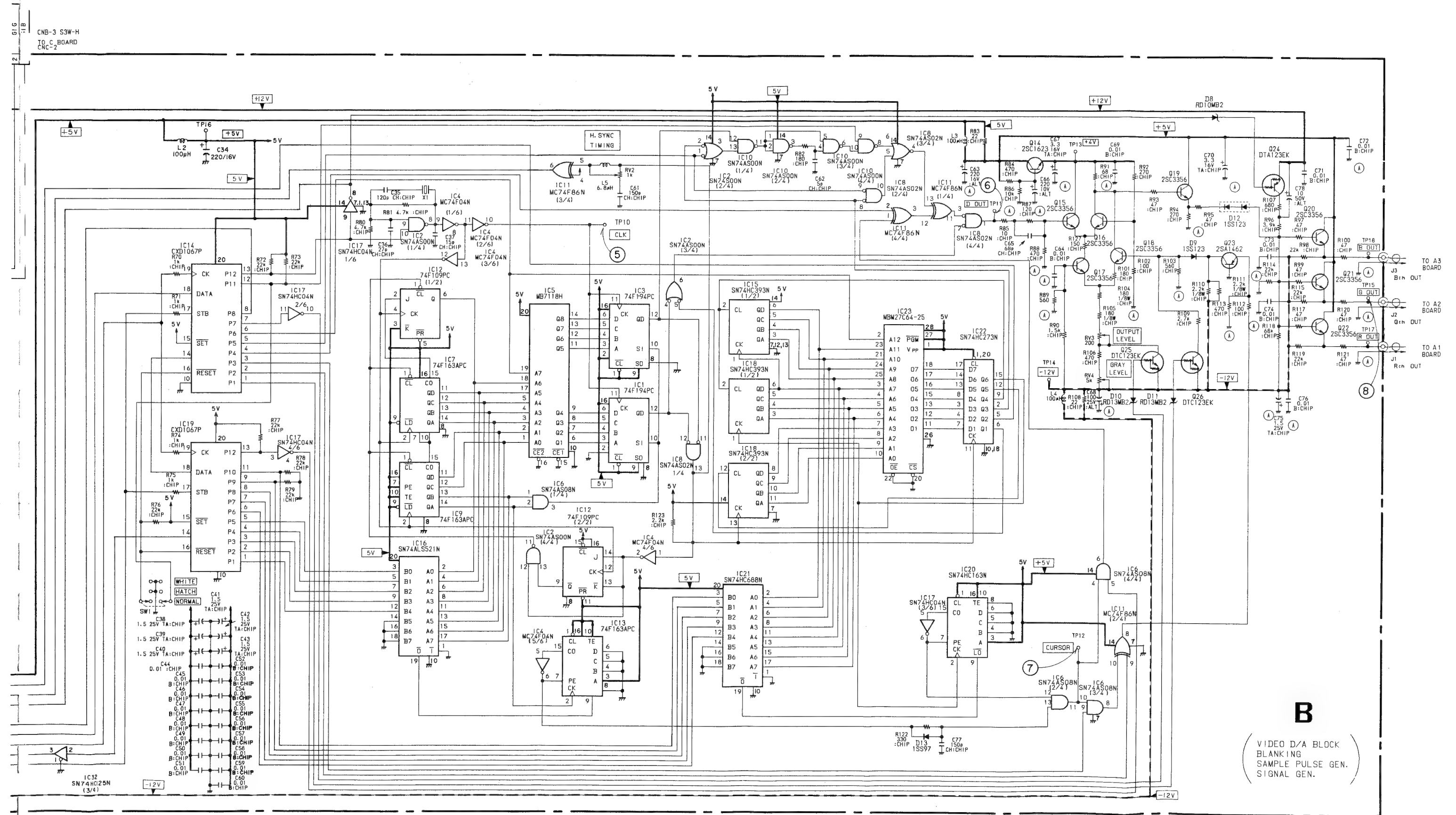
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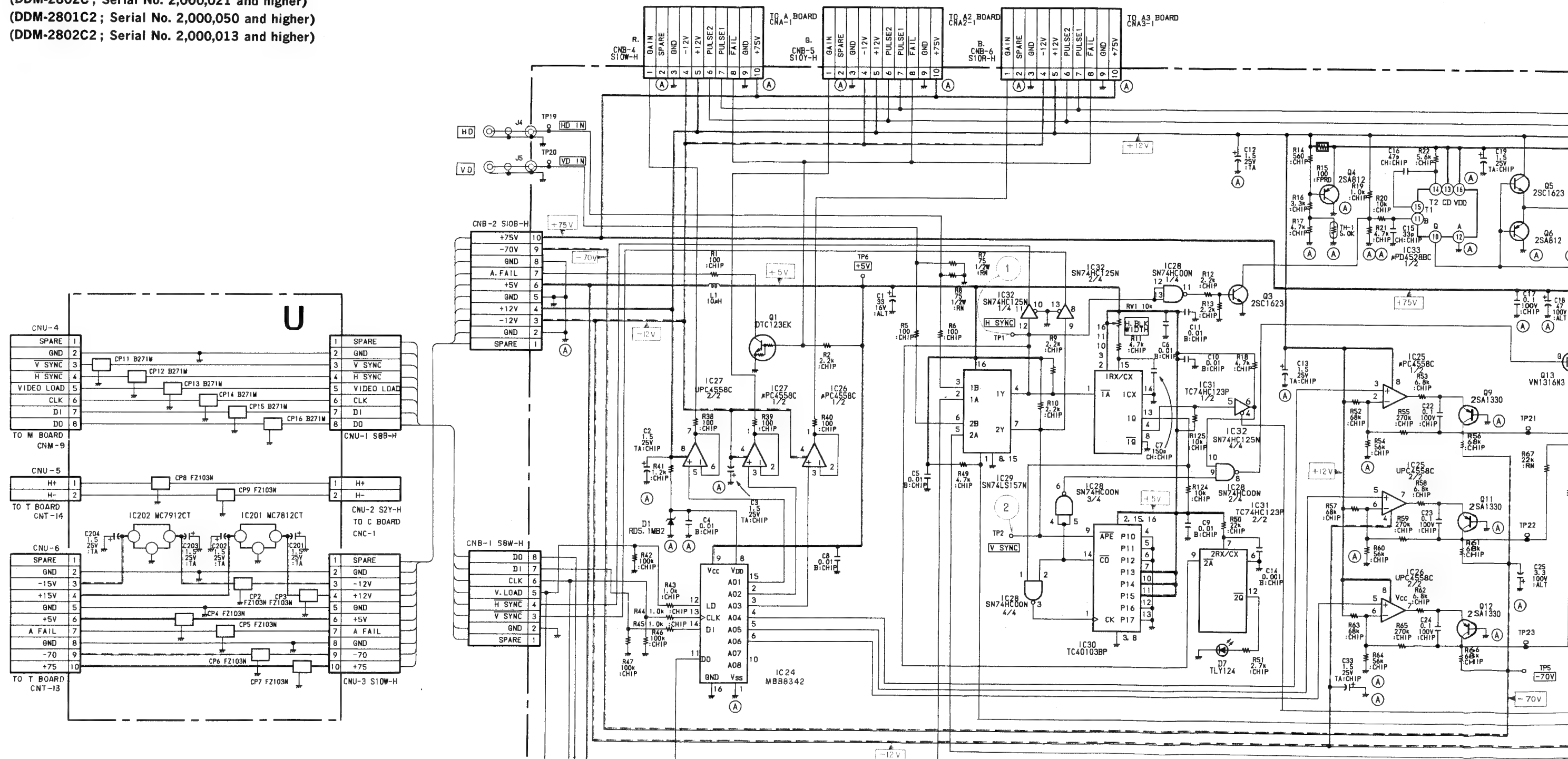
35



B

(VIDEO D/A BLOCK
BLANKING
SAMPLE PULSE GEN.
SIGNAL GEN.)

(DDM-2801C; Serial No. 2,000,044 and higher)
(DDM-2802C; Serial No. 2,000,021 and higher)
(DDM-2801C2; Serial No. 2,000,050 and higher)
(DDM-2802C2; Serial No. 2,000,013 and higher)





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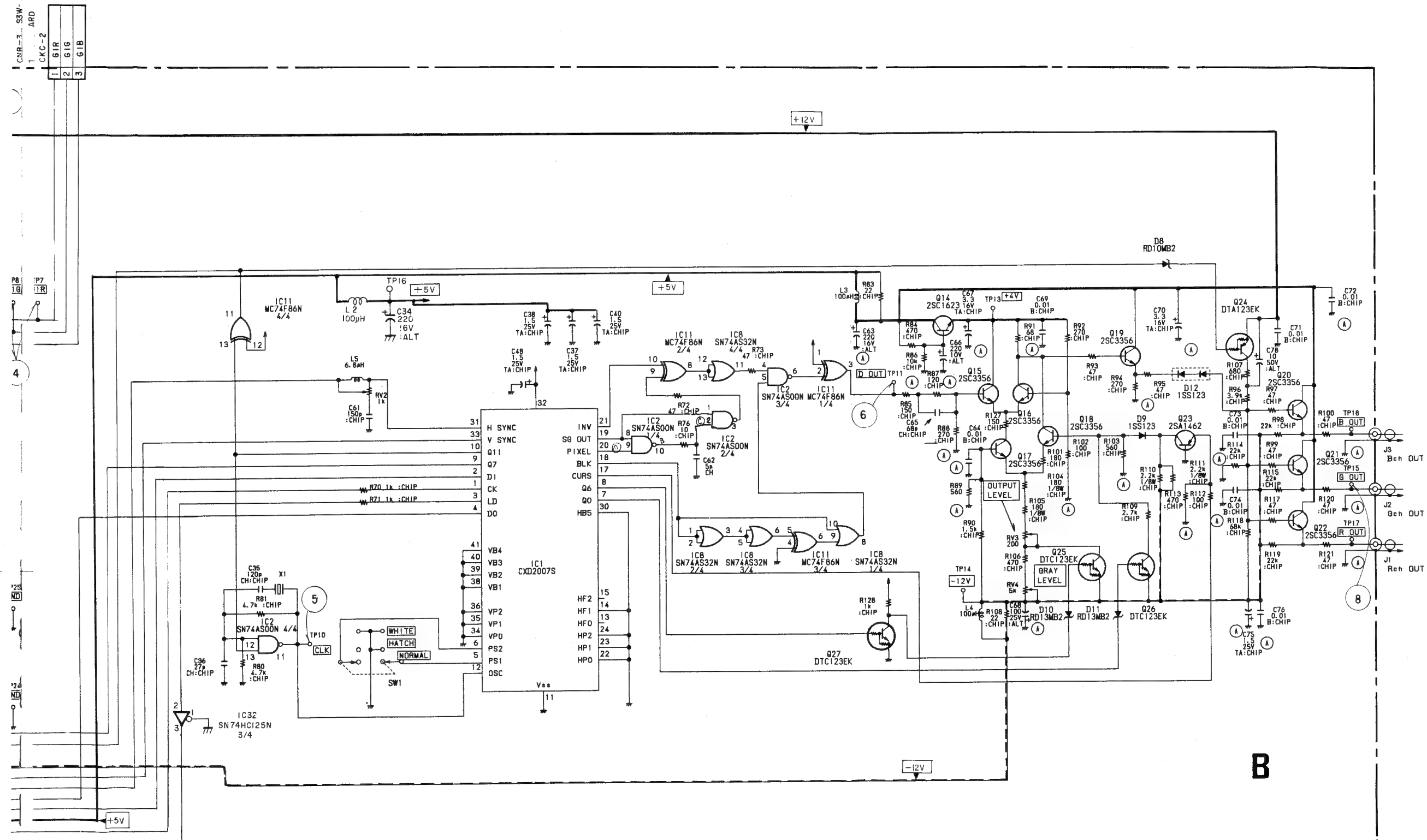
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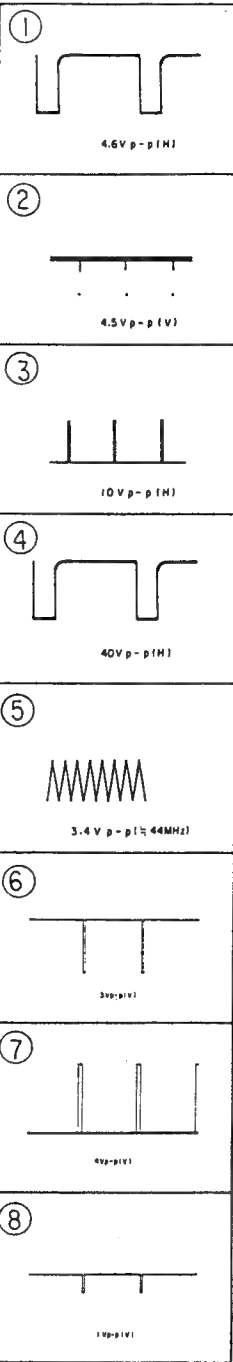
—B Board—

IC1	COUNTOR-1
2	NAND-1
3	COUNTOR-2
4	INV-1
5	H-PATN-MEMORY
6	AND
7	COUNTOR-3
8	NOR
9	COUNTOR-4
10	NAND-2
11	EX-OR
12	COUNTOR-5
13	COUNTOR-6
14	LATCH-SG
15	COUNTOR-7
16	COMPARATOR-H
17	INV-2
18	COUNTOR-8
19	LATCH-CURSOR
20	COUNTOR-9
21	COMPARATOR-V
22	LATCH
23	V-PATN-MEMORY
24	DAC
25	AMP-1
26	AMP-2
27	AMP-3
28	NAND-3
29	SYNC-SWITCH
30	V-BLK-COUNTOR
31	H-BLK-GEN.
32	DRIV
33	PULSE-GEN.
Q1	A-FAIL-OUT
2	DATA-IND-DRIV
3	LEVEL-CONV
4	TEMP. COMPENSATE
5	PULSE DRIVE-1
6	PULSE DRIVE-2
7	PULSE DRIVE-3
8	PULSE DRIVE-4
9	G1-AMP-1
10	BLK-PULSE-DRIV
11	G1-AMP-2
12	G1-AMP-3
13	BLK-PULSE-AMP
14	+4V REG
15	SIG-SW-1
16	SIG-SW-2
17	CORSOR-SW-1
18	CORSOR-SW-2
19	BUFF
20	DRIV-R
21	DRIV-G
22	DRIV-B
23	CURSOS-SW-3
24	BIAS CONT
25	LEVEL CONT
26	CURSOS CONT
D1	+5V REG
2	DATA IND
3	SPEED UP
4	BLK-SW-R
5	BLK-SW-G
6	BLK-SW-B
7	NO SYNC IND
8	SW-1
9	
10	SW-2
11	SW-3
12	SW-4
13	CURSOS SHIFT

—U Board—

IC1	+12V REG
2	-12V REG

—B Board—



—B BOARD—

IC		TP17	H-2
IC1	F-4	TP18	G-1
IC2	E-5	TP19	G-7
IC8	G-5	TP20	G-7
IC11	F-5	TP21	B-3
IC24	C-7	TP22	A-3
IC25	B-5	TP23	B-3
IC26	B-5	TP24	G-8
IC27	A-5	TP25	B-8
IC28	E-6		
IC29	G-6		
IC30	E-7		
IC31	F-6		
IC32	F-7		
IC33	B-7		

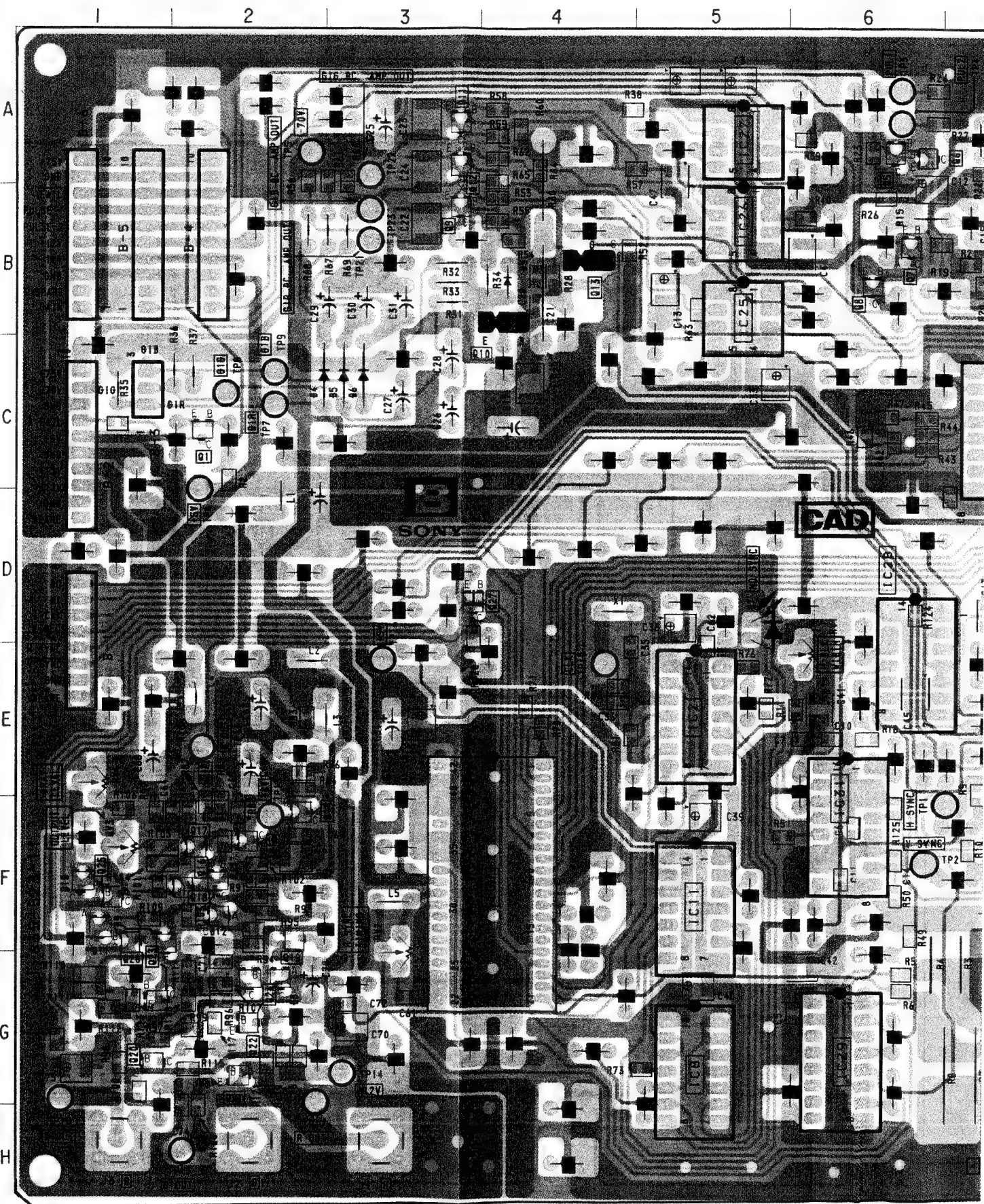
TRANSISTOR	
Q1	C-2
Q3	C-8
Q4	A-7
Q5	A-6
Q6	A-6
Q7	B-6
Q8	B-6
Q9	B-3
Q10	B-4
Q11	A-3
Q12	A-3
Q13	B-4
Q14	F-2
Q15	F-2
Q16	F-2
Q17	F-2
Q18	F-2
Q19	F-2
Q20	G-1
Q21	G-2
Q22	G-2
Q23	G-1
Q24	G-2
Q25	F-1
Q26	F-1
Q27	D-3

DIODE	
D1	C-7
D3	B-4
D4	C-3
D5	C-3
D6	C-3
D7	D-5
D8	G-2
D9	F-1
D10	F-1
D11	F-1
D12	F-2

VARIABLE RESISTOR	
RV1	E-6
RV2	F-3
RV3	F-1
RV4	E-1

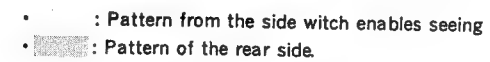
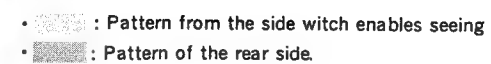
TESTPOINT	
TP1	F-7
TP2	F-6
TP3	A-6
TP4	A-6
TP5	A-2
TP6	C-2
TP7	C-2
TP8	C-2
TP9	C-2
TP10	E-4
TP11	E-2
TP13	F-2
TP14	G-3
TP15	H-2
TP16	E-3

—B BOARD— (DDM-2801C; Serial No. 2,000,044 and higher) (DDM-2801C2; Serial No. 2,000,050 and higher)
(DDM-2802C; Serial No. 2,000,021 and higher) (DDM-2802C2; Serial No. 2,000,013 and higher)

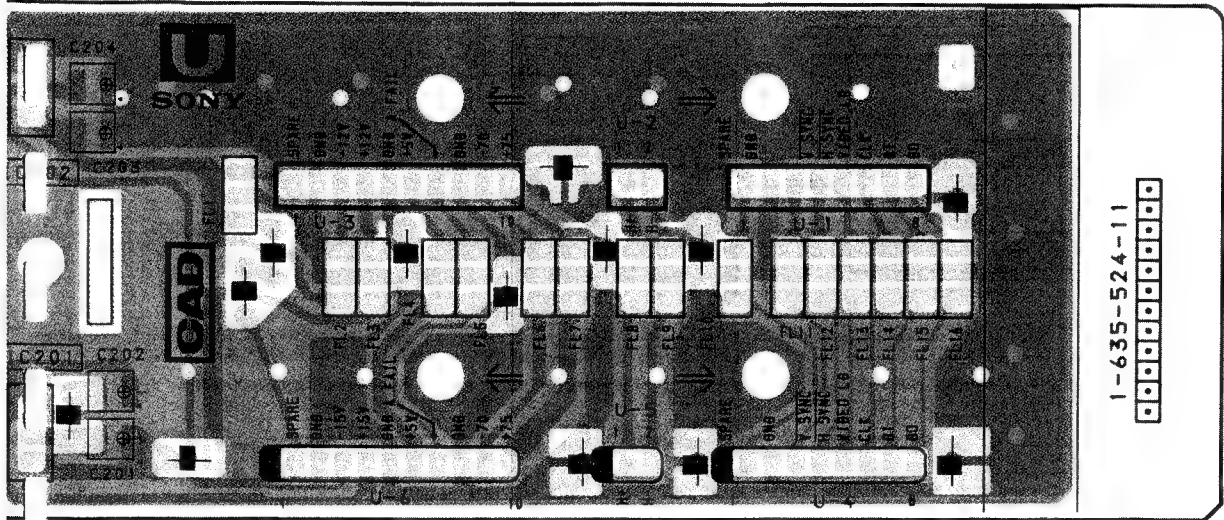


DDM-2801C/2802C
DDM-2801C2/2802C2

—U BOARD— (DDM-2801C; Serial No. 2,000,044 and higher) (DDM-2801C2; Serial No. 2,000,050 and higher)
(DDM-2802C; Serial No. 2,000,021 and higher) (DDM-2802C2; Serial No. 2,000,013 and higher)

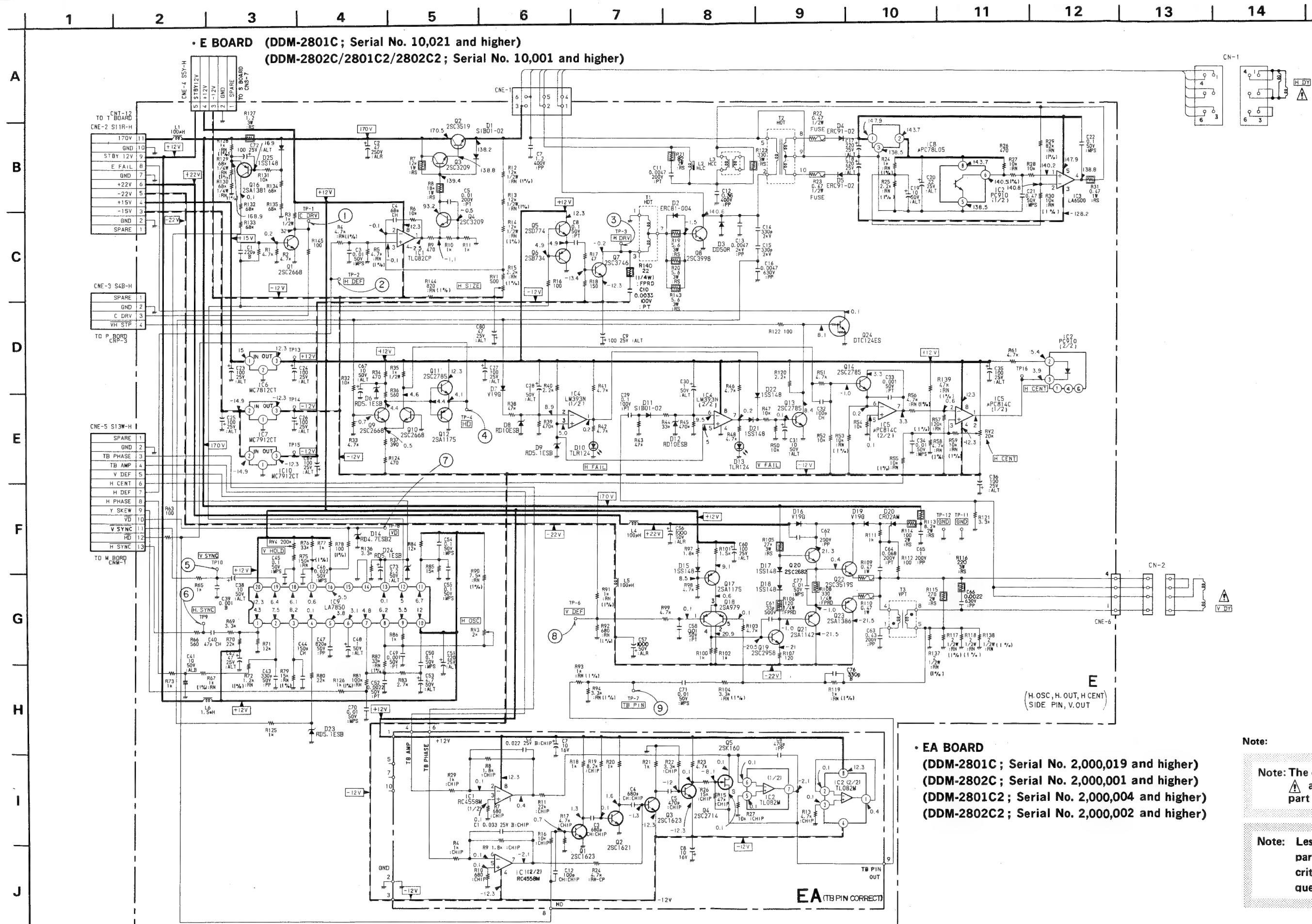


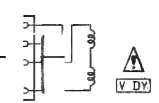
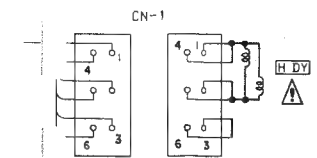
BOARD— (DDM-2801C ; Serial No. 2,000,044 and higher) (DDM-2801C2 ; Serial No. 2,000,050 and higher)
 (DDM-2802C ; Serial No. 2,000,021 and higher) (DDM-2802C2 ; Serial No. 2,000,013 and higher)



- : Pattern from the side witch enables seeing
- : Pattern of the rear side.

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 art of the rear side.





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Note:

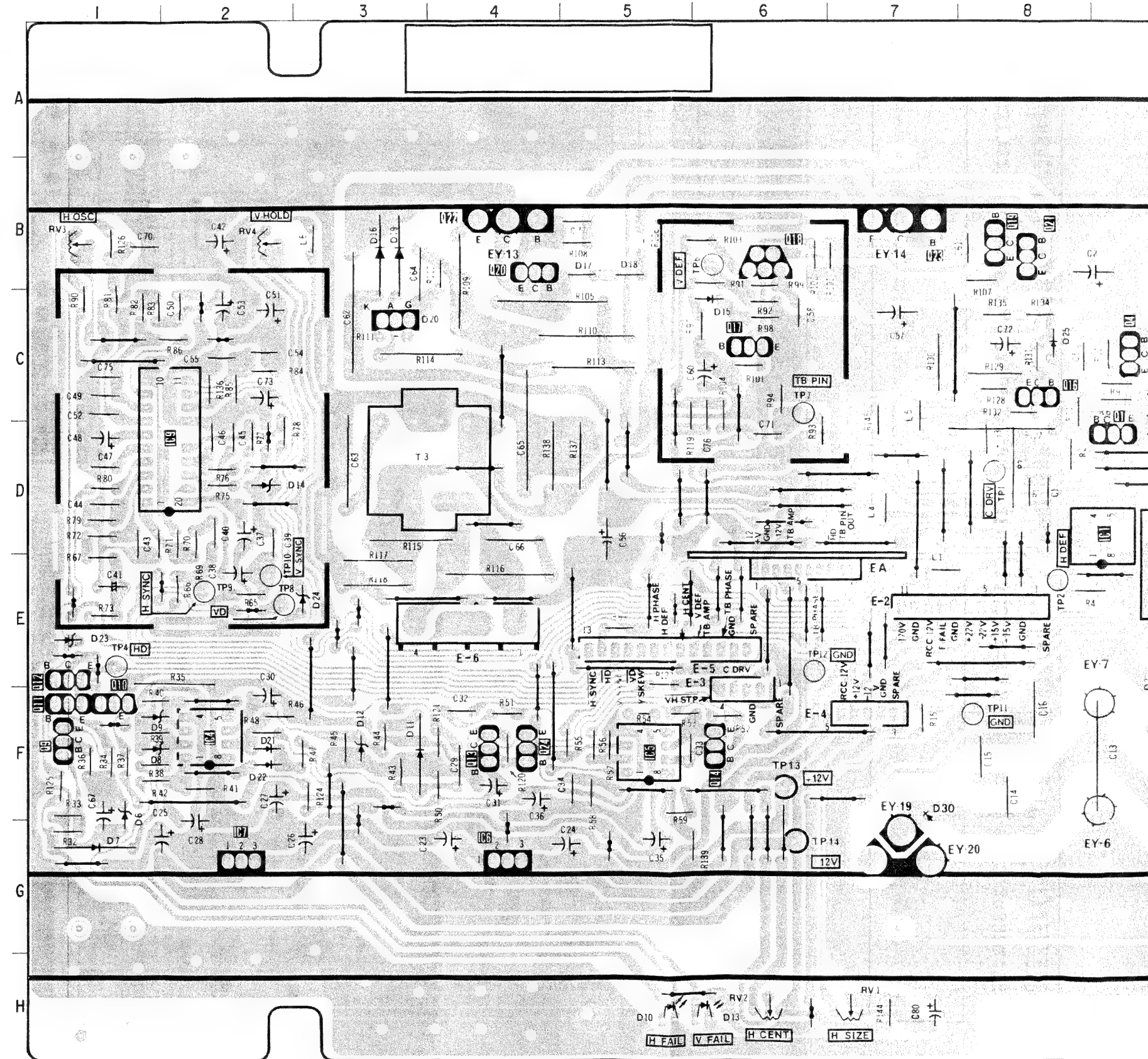
The components identified by shading and mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et par une marque sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

-E BOARD-

IC	TP10	E-2
IC1 D-9	TP11 F-8	
IC2 B-11	TP12 E-6	
IC3 B-12	TP13 F-6	
IC4 F-2	TP14 G-6	
IC5 F-5	TP15 C-10	
IC6 G-4	TP16 C-11	
IC7 G-2		
IC8 C-12		
IC9 D-2		
IC10 C-10		
TRANSISTOR		
Q1 D-9		
Q2 B-10		
Q3 C-11		
Q4 C-9		
Q5 C-11		
Q6 C-11		
Q7 D-10		
Q8 G-10		
Q9 F-1		
Q10 F-1		
Q11 F-1		
Q12 E-1		
Q13 F-4		
Q14 F-6		
Q16 C-8		
Q17 C-6		
Q18 B-6		
Q19 B-8		
Q20 B-4		
Q21 B-8		
Q22 B-4		
Q23 B-7		
Q24 F-4		
DIODE		
D1 B-10		
D2 E-9		
D3 G-7		
D4 C-13		
D5 D-12		
D6 F-1		
D7 G-1		
D8 F-1		
D9 F-1		
D10 H-5		
D11 F-3		
D12 F-3		
D13 H-6		
D14 D-2		
D15 C-6		
D16 B-3		
D17 B-5		
D18 B-5		
D19 B-3		
D20 C-3		
D21 F-2		
D22 F-2		
D23 E-1		
D24 E-3		
D25 C-8		
VARIABLE RESISTOR		
RV1 H-7		
RV2 H-6		
RV3 B-1		
RV4 B-2		
TESTPOINT		
TP1 D-8		
TP2 E-8		
TP3 D-11		
TP4 E-1		
TP6 B-6		
TP7 C-6		
TP8 E-2		
TP9 E-2		

-E Board- (DDM-2801C; Serial No. 2,000,019 and higher) (DDM-2801C2; Serial No. 2,000,024 and higher)
(DDM-2802C; Serial No. 2,000,011 and higher) (DDM-2802C2; Serial No. 2,000,006 and higher)



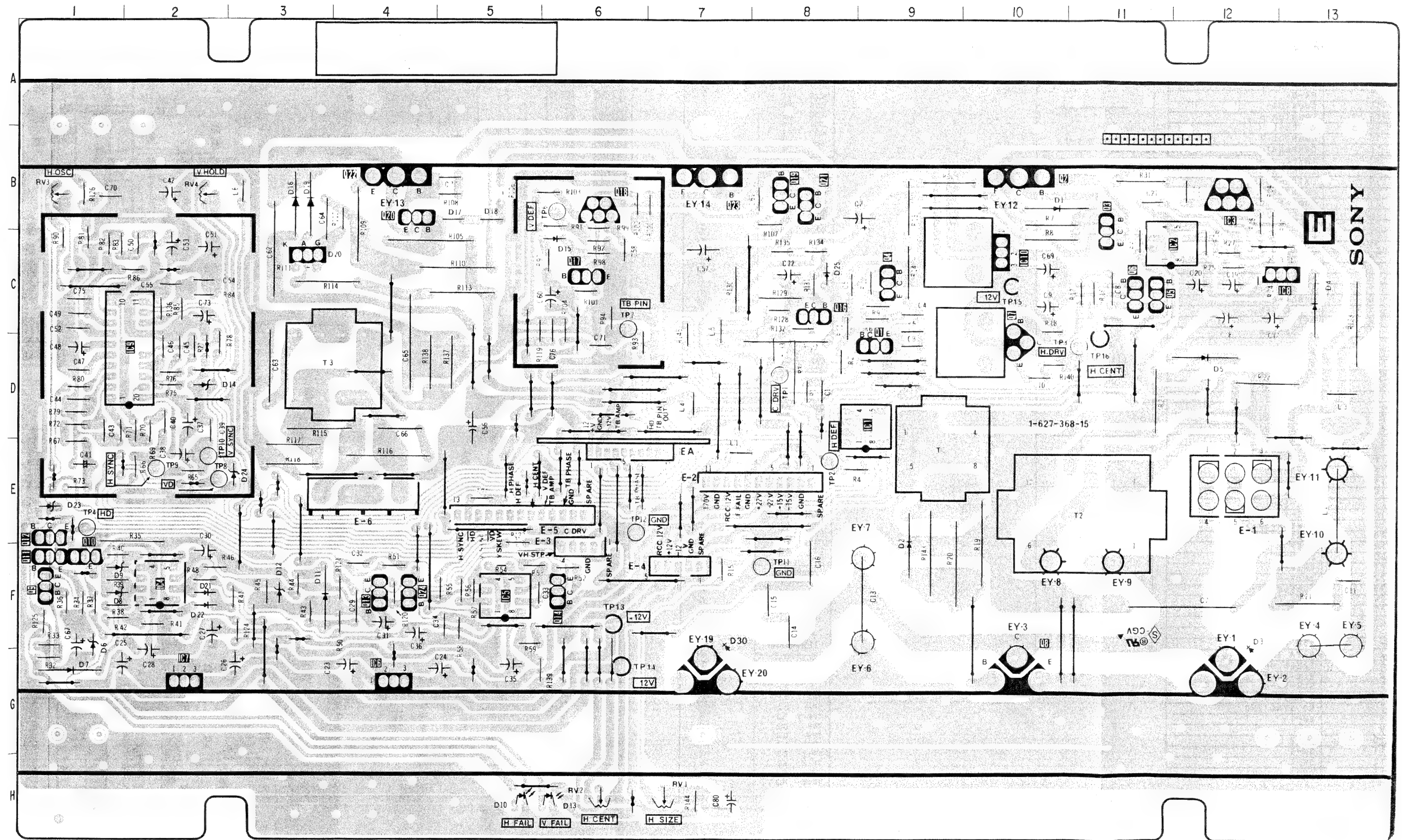
DDM-2801C/2802C
DDM-2801C2/2802C2

DDM-2801C/2802C
DDM-2801C2/2802C2

E

I. JT, H CENT, SIDE PIN, V OUT)

—E Board— (DDM-2801C; Serial No. 2,000,019 and higher) (DDM-2801C2; Serial No. 2,000,024 and higher)
(DDM-2802C; Serial No. 2,000,011 and higher) (DDM-2802C2; Serial No. 2,000,006 and higher)



E

(H.OSC, H.OUT, H.CENT, SIDE PIN V.OUT)

—E BOARD—

IC1	H PIN MODU
2	H.CENT PWM 1
3	H.CENT OUT
4	FAIL COMP
5	H.CENT PWM 2
6	12V REG
7	-12V REG
8	5V REG
9	H.V OSC
10	-12V REG

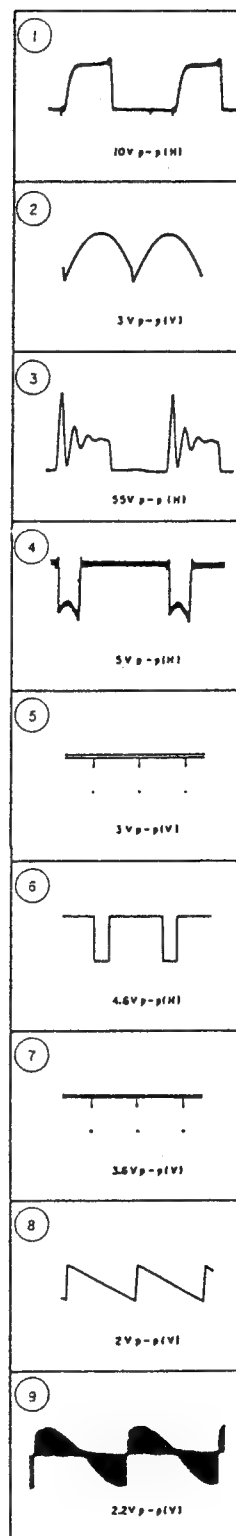
Q1	C DRV PULSE
2	H PIN OUT
3	H PIN DRIVE 1
4	H PIN DRIVE 2
5	BUFF 1
6	BUFF 2
7	H DRIVE
8	H OUT
9	HD PULSE 1
10	HD PULSE 2
11	BUFF 3
12	BUFF 4
13	V.H STOP
14	H.CENT PWM
16	HOT PROT
17	BIAS
18	V DEF PREAMP
19	V DEF DRIVE 1
20	V DEF DRIVE 2
21	V DEF DRIVE 3
22	V OUT 1
23	V OUT 2
24	E FAIL

D1	PROT
2	SPEED UP
3	DAMPER
4	H CENTER RECT 1
5	H CENTER RECT 2
6	CLAMP 1
7	H FAIL RECT
8	CLAMP 2
9	V.H FAIL REF
10	H FAIL INDI.
11	V FAIL RECT
12	CLAMP 3
13	V FAIL INDI.
14	CLAMP 4
15	BIAS 1
16	VCC SUPPLY
17	BIAS 2
18	BIAS 3
19	PROT
20	VCC SW
21	SW 1
22	SW 2
23	CLAMP 5
24	CLAMP 6
25	BIAS 4

—EA BOARD—

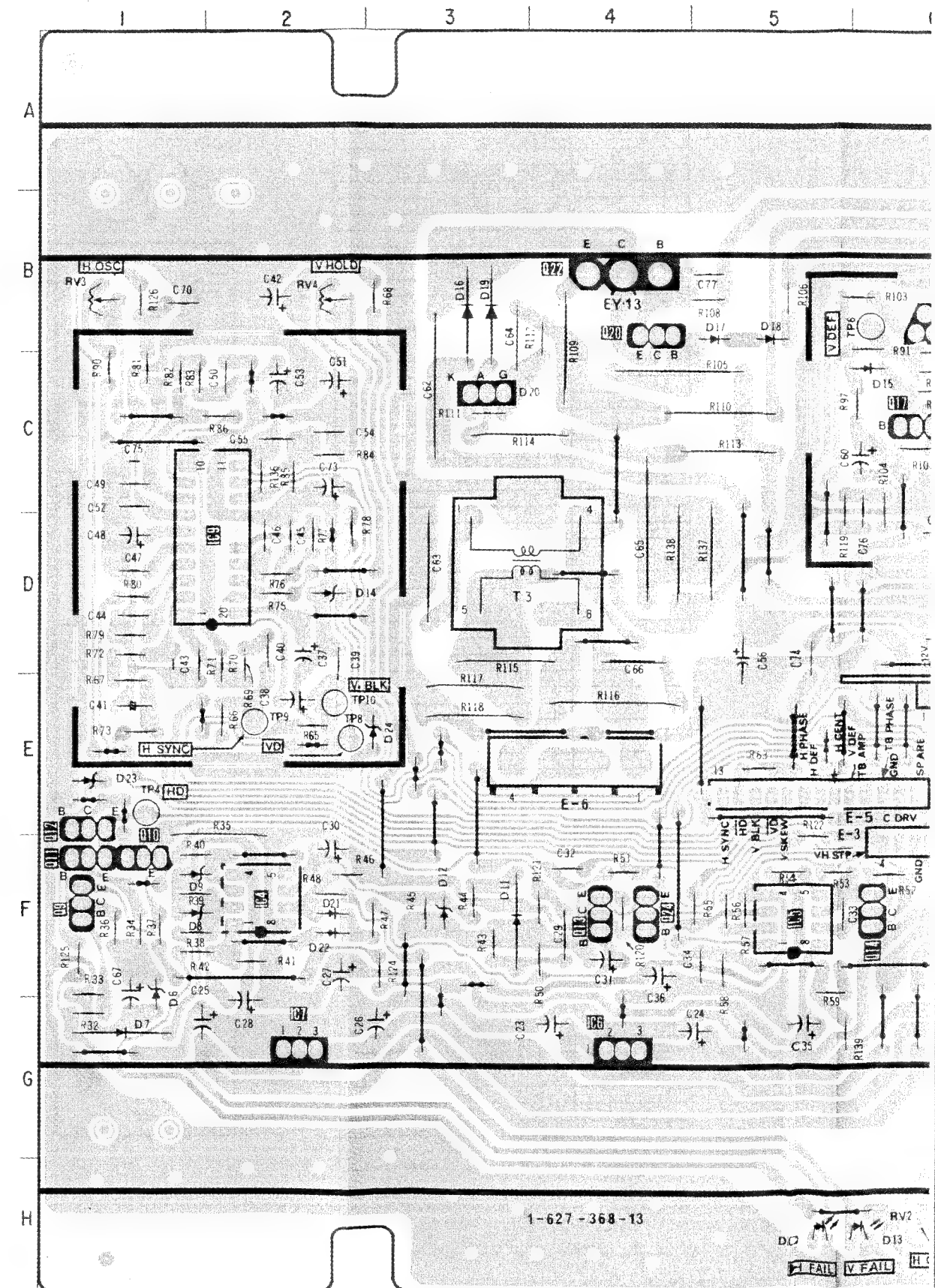
IC1	T & B PIN AMP
2	T & B PIN MODU
Q1	T.B PIN PHASE 1
2	T.B PIN PHASE 2
3	T.B PIN PHASE 3
4	T.B PIN PHASE 4
5	H SAW GEN

—E BOARD—



—E BOARD—

IC	TP10 TP11 TP12	E-2 F-8 E-6
IC1	D-9	
IC2	B-11	
IC3	B-12	
IC4	F-2	
IC5	F-5	
IC6	G-4	
IC7	G-2	
IC8	C-12	
IC9	D-2	
IC10	C-10	
TRANSISTOR		
Q1	D-9	
Q2	B-10	
Q3	C-11	
Q4	C-9	
Q5	C-11	
Q6	C-11	
Q7	D-10	
Q8	G-10	
Q9	F-1	
Q10	F-1	
Q11	F-1	
Q12	E-1	
Q13	F-4	
Q14	F-6	
Q16	C-8	
Q17	C-6	
Q18	B-6	
Q19	B-8	
Q20	B-4	
Q21	B-8	
Q22	B-4	
Q23	B-7	
Q24	F-4	
DIODE		
D1	B-10	
D2	E-9	
D3	G-7	
D4	C-13	
D5	D-12	
D6	F-1	
D7	G-1	
D8	F-1	
D9	F-1	
D10	H-5	
D11	F-3	
D12	F-3	
D13	H-6	
D14	D-2	
D15	C-6	
D16	B-3	
D17	B-5	
D18	B-5	
D19	B-3	
D20	C-3	
D21	F-2	
D22	F-2	
D23	E-1	
D24	E-3	
D25	C-8	
VARIABLE RESISTOR		
RV1	H-7	
RV2	H-6	
RV3	B-1	
RV4	B-2	
TESTPOINT		
TP1	D-8	
TP2	E-8	
TP3	D-11	
TP4	E-1	
TP6	B-6	
TP7	C-6	
TP8	E-2	
TP9	E-2	

—E BOARD— (DDM-2801C; Serial No. 10,021—2,000,018) (DDM-2801C2; Serial No. 10,001—2,000,018)
(DDM-2802C; Serial No. 10,001—2,000,010) (DDM-2802C2; Serial No. 10,001—2,000,010)

DDM-2801C/2802C
DDM-2801C2/2802C2

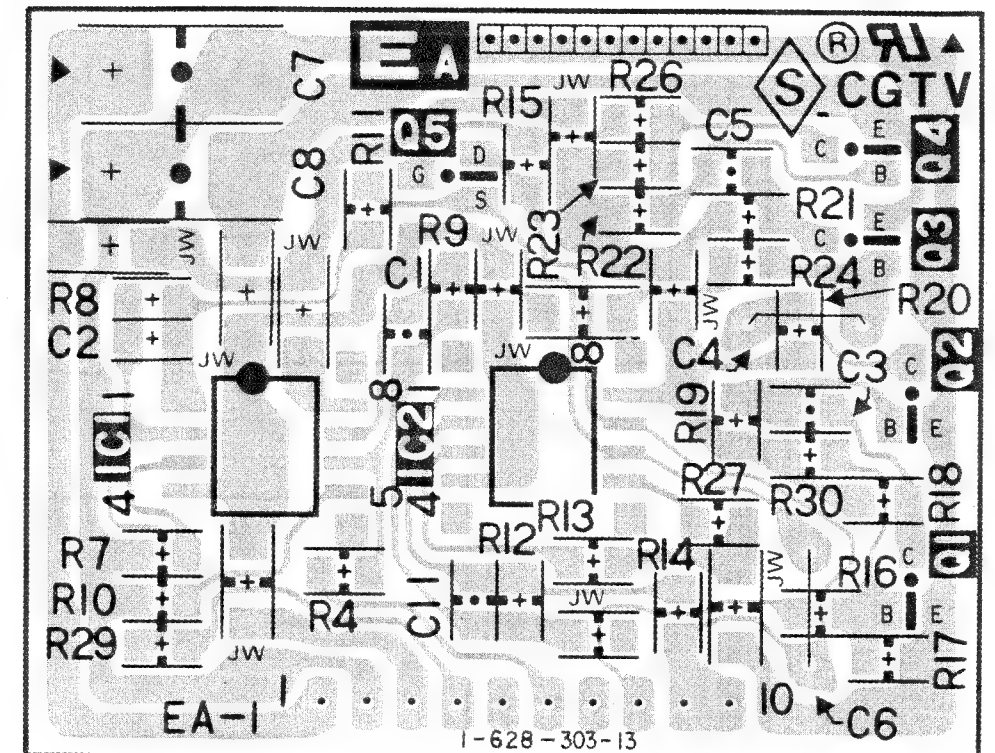
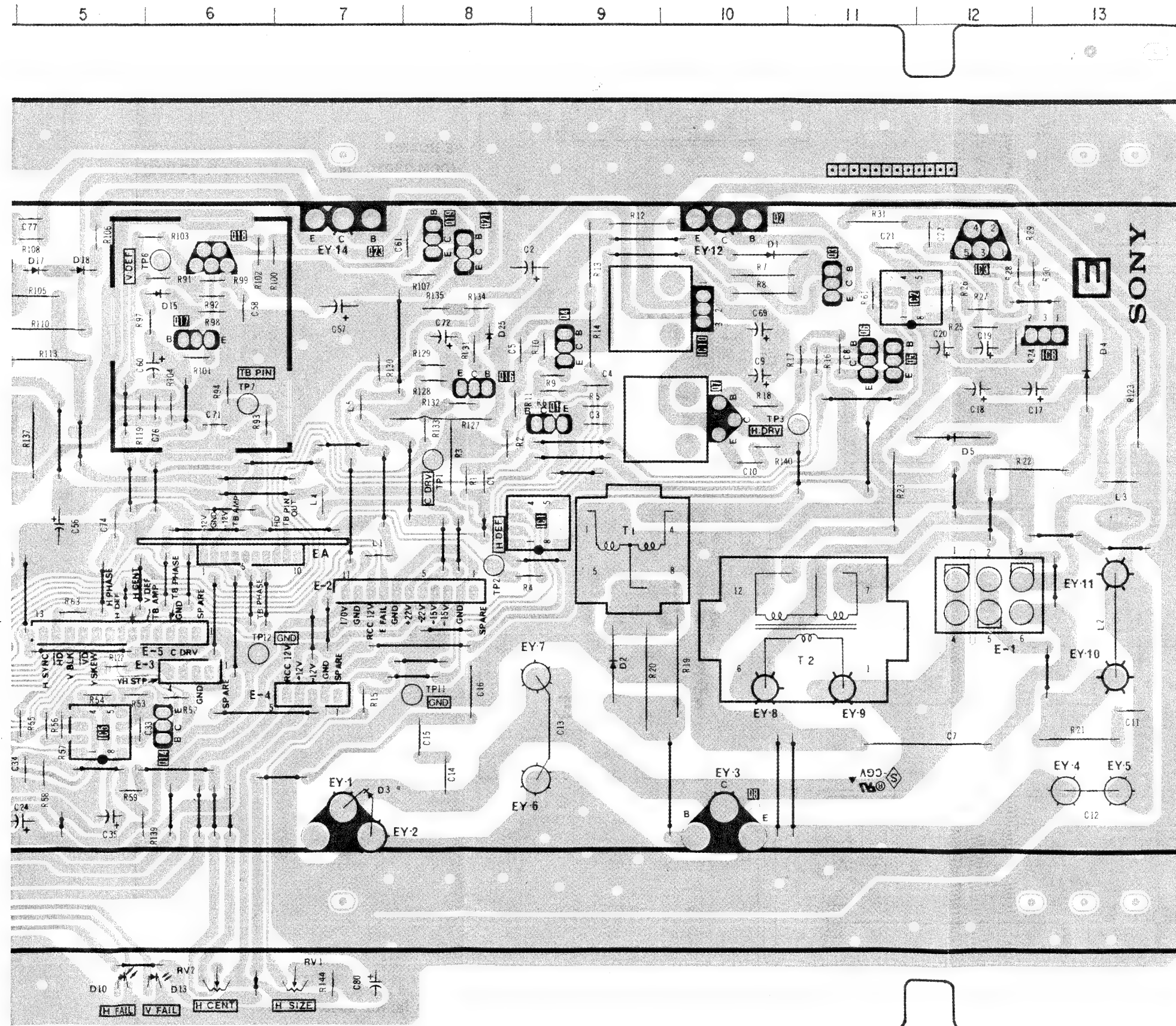
DDM-2801C/2802C
DDM-2801C2/2802C2

E

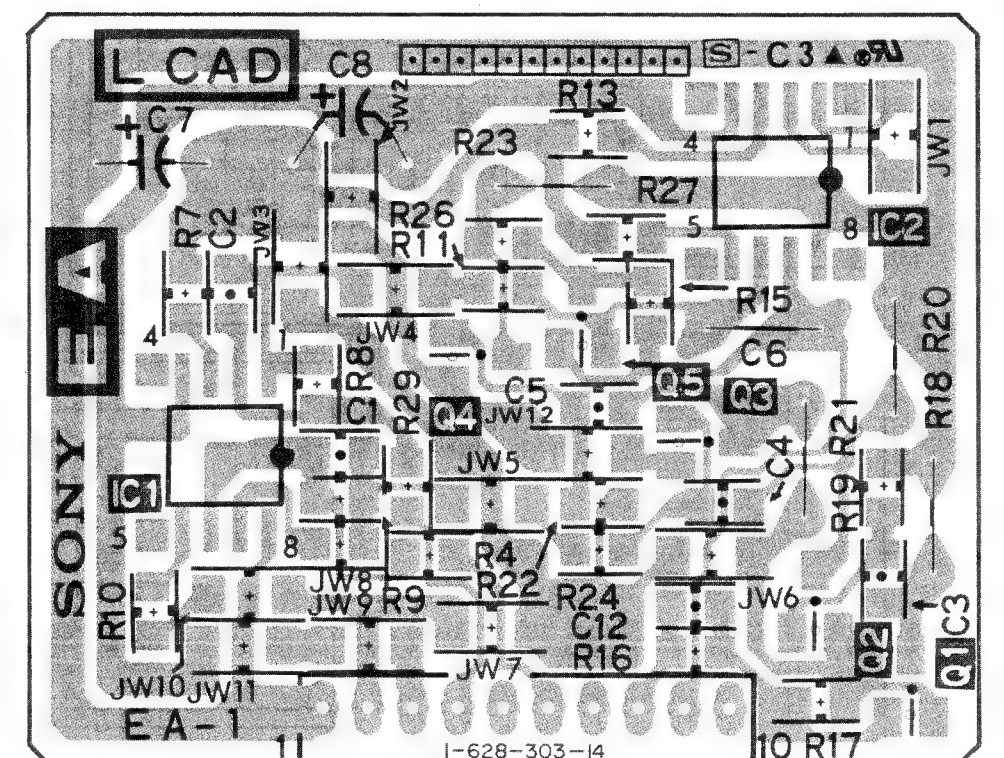
EA

C2; Serial No. 10,001—2,000,023)
C2; Serial No. 10,001—2,000,005)

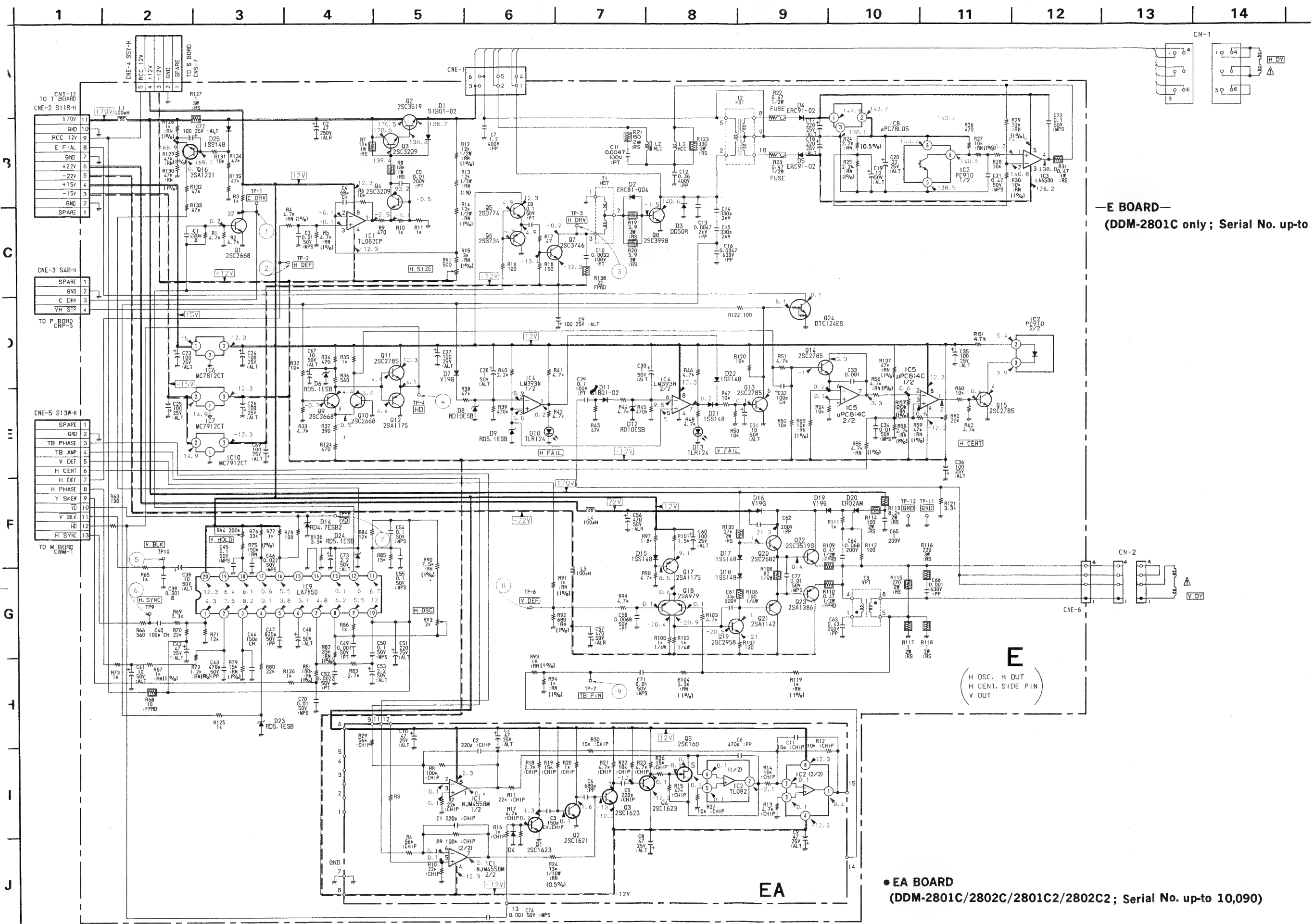
—EA BOARD— (DDM-2801C, Serial No. 10,091—2,000,018)
(DDM-2802C, Serial No. 10,001—10,003)
(DDM-2801C2, Serial No. up-to 2,000,003)
(DDM-2802C2, Serial No. up-to 2,000,001)



—EA BOARD— (DDM-2801C; Serial No. 2,000,019 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher)
(DDM-2801C2; Serial No. 2,000,004 and higher)
(DDM-2802C2; Serial No. 2,000,002 and higher)



DDM-2801C/2802C
DDM-2801C2/2802C2



—E BOARD—
(DDM-2801C only; Serial No. up to 10,020)

• EA BOARD
(DDM-2801C/2802C/2801C2/2802C2; Serial No. up to 10,090)

—E Bo

IC1
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Q1
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—EA Bo

IC1
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Q1
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4
5

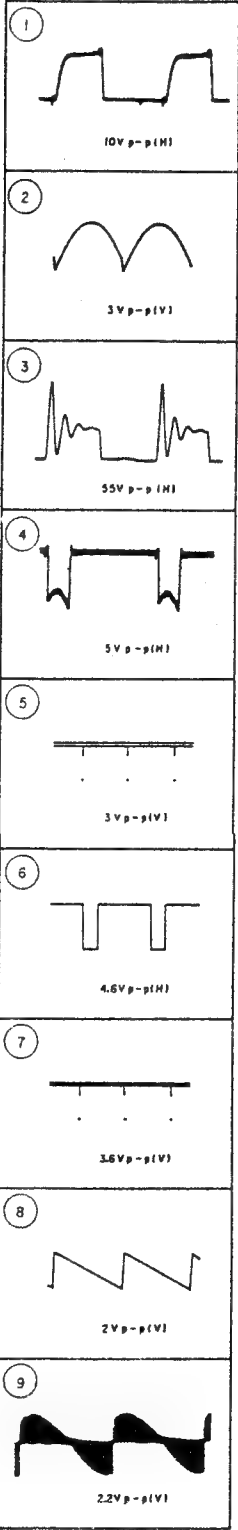
—E Board—

IC1	H PIN MODU
2	H.CENT PWM 1
3	H.CENT OUT
4	FAIL COMP
5	H.CENT PWM 2
6	12V REG
7	-12V REG
8	5V REG
9	H.V OSC
10	-12V REG
Q1	C DRV PULSE
2	H PIN OUT
3	H PIN DRIVE 1
4	H PIN DRIVE 2
5	BUFF 1
6	BUFF 2
7	H DRIVE
8	H OUT
9	HD PULSE 1
10	HD PULSE 2
11	BUFF 3
12	BUFF 4
13	V.H STOP
14	H.CENT PWM
16	HOT PROT
17	BIAS
18	V DEF PREAMP
19	V DEF DRIVE 1
20	V DEF DRIVE 2
21	V DEF DRIVE 3
22	V OUT 1
23	V OUT 2
24	E FAIL
D1	PROT
2	SPEED UP
3	DAMPER
4	H CENTER RECT 1
5	H CENTER RECT 2
6	CLAMP 1
7	H FAIL RECT
8	CLAMP 2
9	V.H FAIL REF
10	H FAIL INDI.
11	V FAIL RECT
12	CLAMP 3
13	V FAIL INDI.
14	CLAMP 4
15	BIAS 1
16	VCC SUPPLY
17	BIAS 2
18	BIAS 3
19	PROT
20	VCC SW
21	SW 1
22	SW 2
23	CLAMP 5
24	CLAMP 6
25	BIAS 4

—EA Board—

IC1	T & B PIN AMP
2	T & B PIN MODU
Q1	T.B PIN PHASE 1
2	T.B PIN PHASE 2
3	T.B PIN PHASE 3
4	T.B PIN PHASE 4
5	H SAW GEN

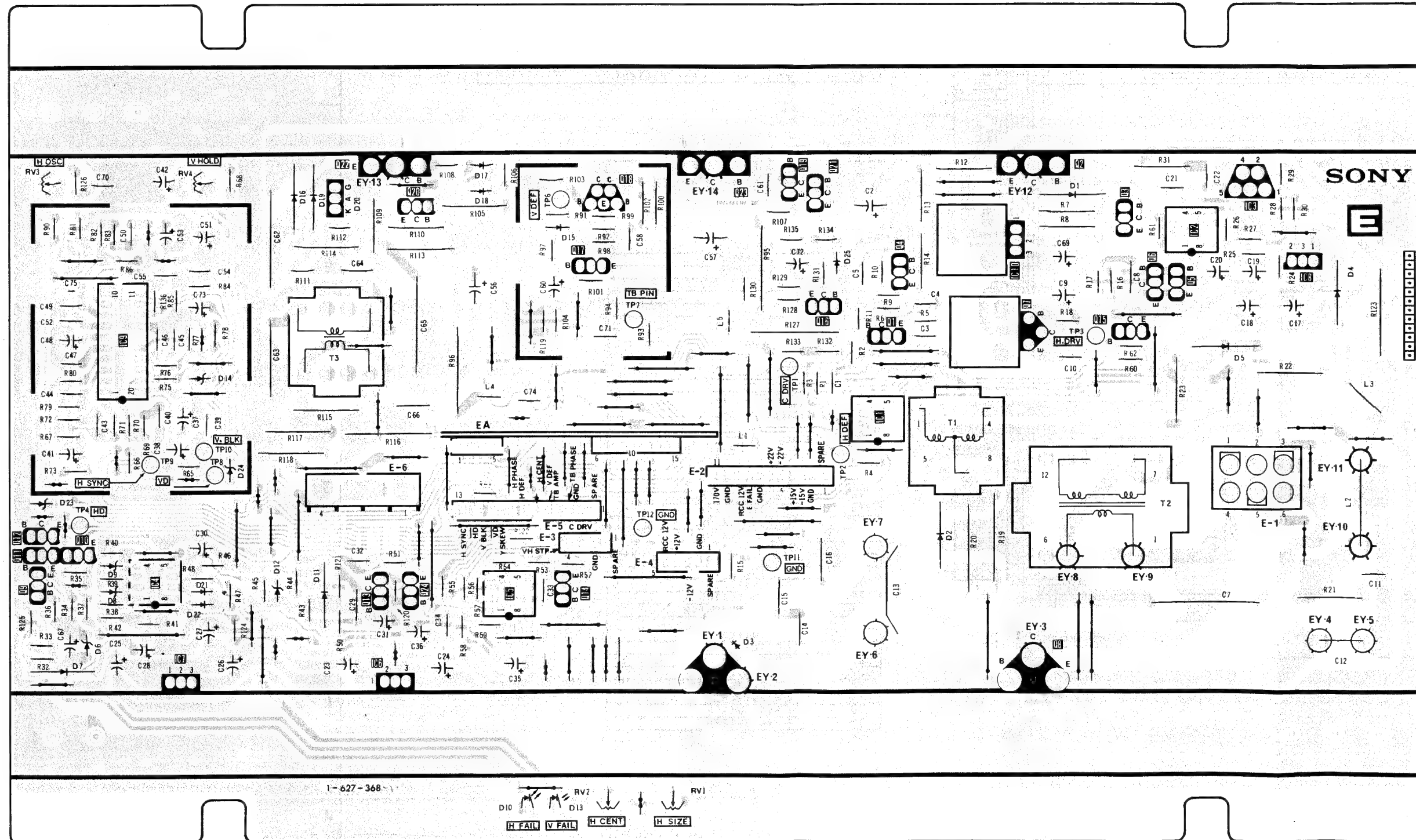
—E Board—



E (H.OSC, H.OUT, H.CENT, SIDE PIN V.OUT)
—E BOARD— (DDM-2801C only, Serial No. up to 10,020)

E **EA**
—EA F

IC	9	4	7	6	5	1	10	2	3	8
Q	11 12 10	22	13 20	14 17 18	23	19 21	16	1 4	7 2	3 15 6 5
D	23	6 9 8	21 22	14 24	12 16 19 20	17 18	15	25	2	1 5 4
RV	3	4	10 8	6	2	7	1	2	3	
TP	4	9	10 8	6	2	7	1	2	3	



C/2802C DDM-2801C/2802C
C2/2802C2 DDM-2801C2/2802C2

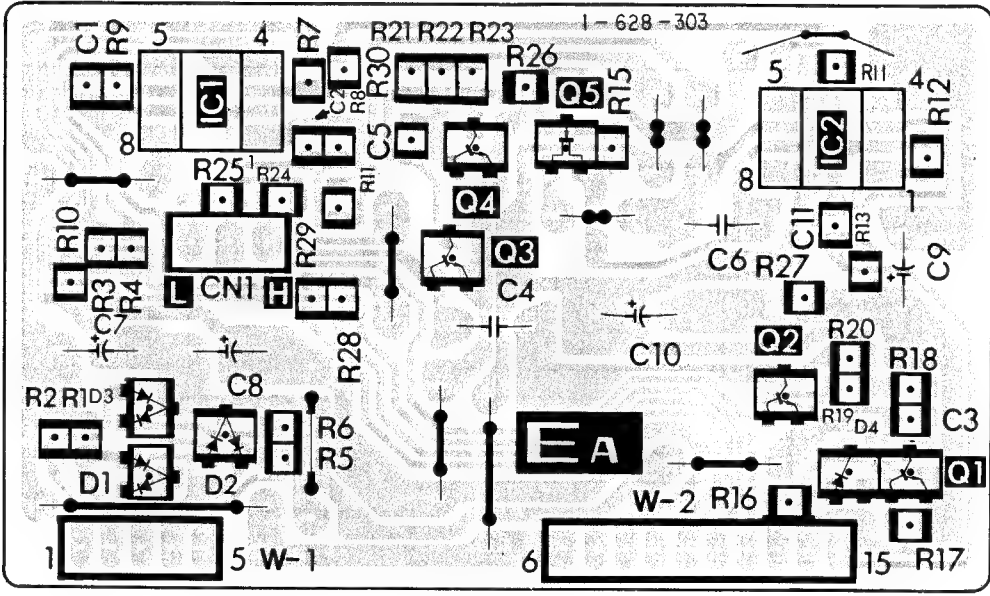
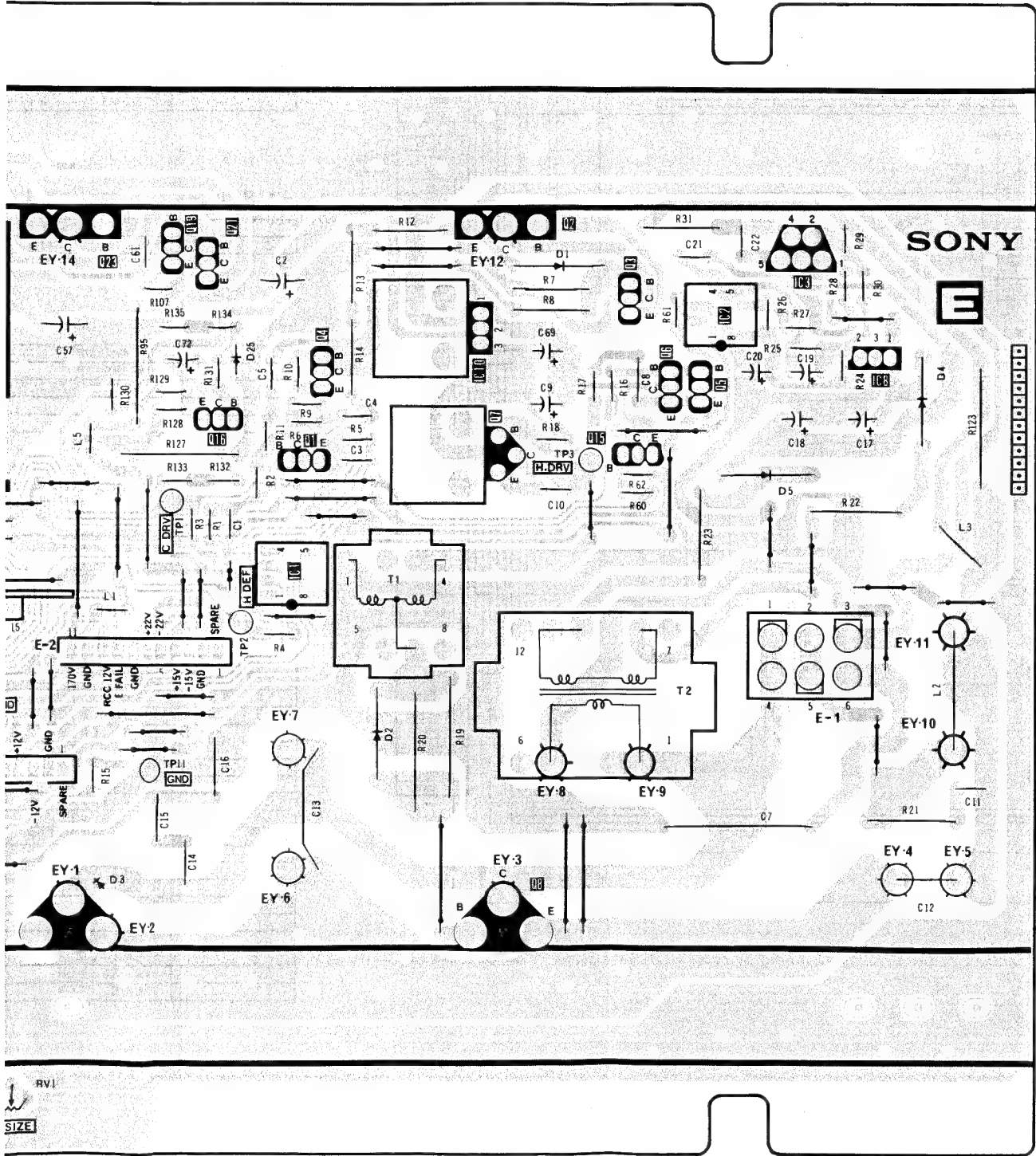
DDM-2801C/2802C
DDM-2801C2/2802C2

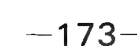
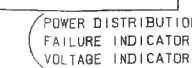
E

EA

—EA BOARD— (DDM-2801C/2802C/2801C2/2802C2 ; Serial No. up-to 10,090)

1										10										2										3										8																																																																															
23										19										21										16										1										4										7										2										3										15										6										5									
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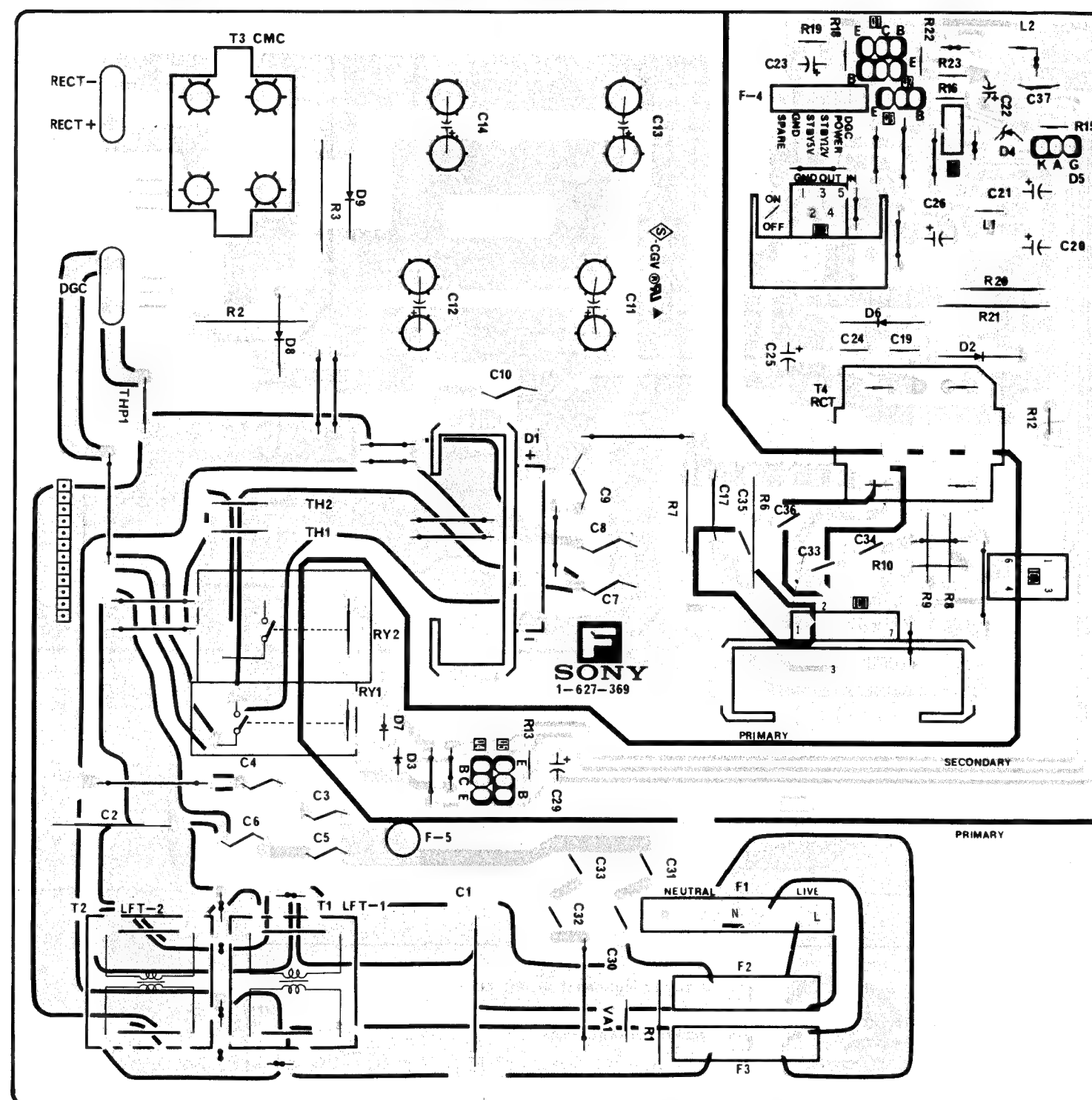


DDM-2801C/2802C
DDM-2801C2/2802C2

DDM-2801C/2802C
DDM-2801C2/2802C2

F (POWER SW, AC FILTER, AC RECT, STBY 5V, STBY 12V)

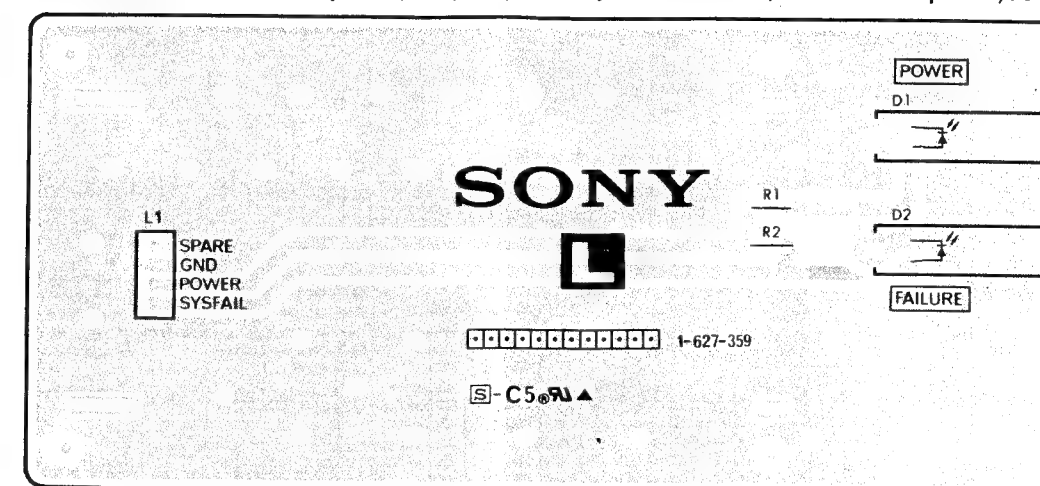
—F BOARD— (DDM-2801C; Serial No. up-to 2,000,013) (DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C; Serial No. 10,001—10,003) (DDM-2802C2; Serial No. up-to 2,000,001)



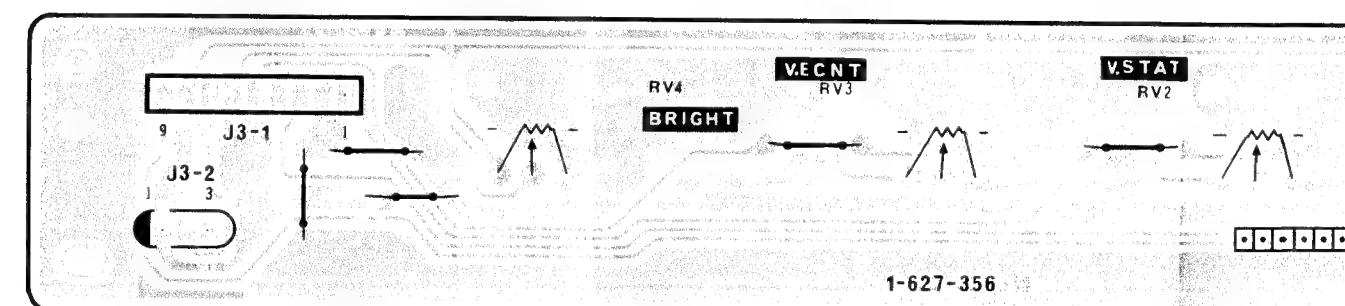
NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

J3 (CUSTOMER CONTROL, DEGAUSS SW) **L** (POWER/FAILURE, INDICATOR) **J2** (CONTRAST) **J1**

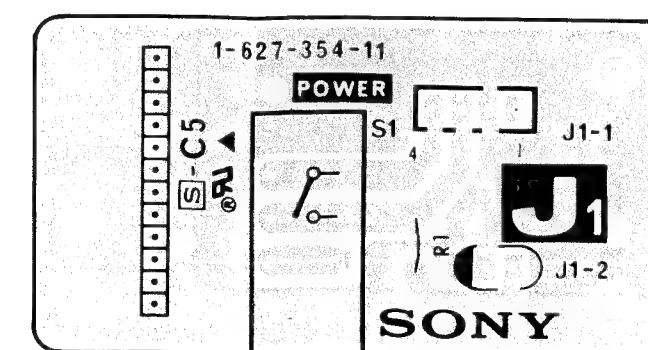
—L BOARD—
(DDM-2801C only; Serial No. up-to 2,000,018) (DDM-2801C2; Serial No. up-to 2,000,023)
(DDM-2802C; Serial No. up-to 2,000,010) (DDM-2802C2; Serial No. up-to 2,000,005)



—J3 BOARD— (DDM-2801C only, Serial No. up-to 2,000,018)



—J1 BOARD— (DDM-2801C only, Serial No. up-to 10,030)



J2

(CONTRAST)

J1

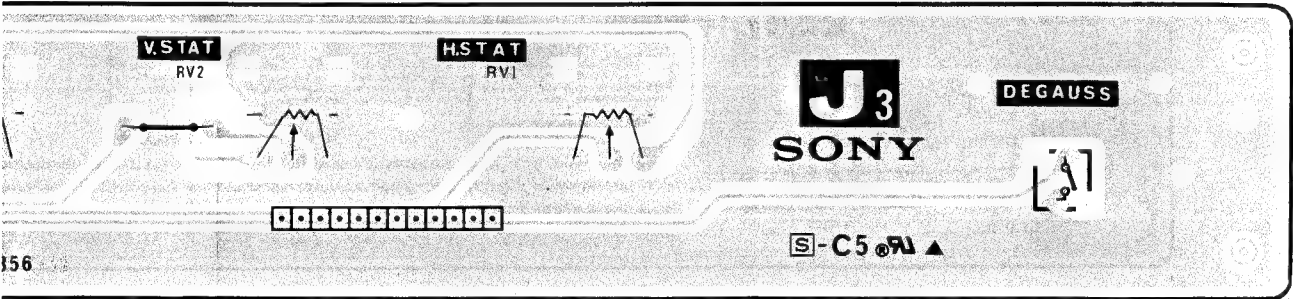
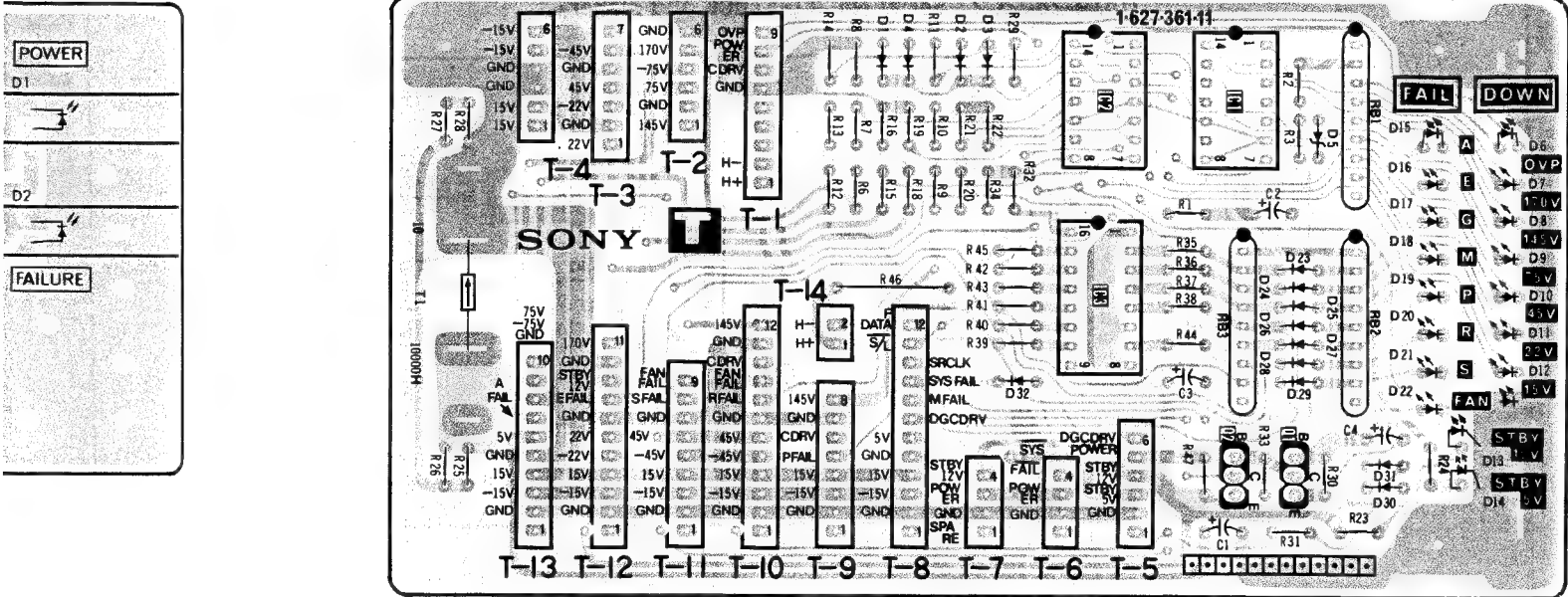
(POWER INDICATOR, POWER SW)

T

(POWER DISTRIBUTION, FAILURE INDICATOR, VOLTAGE INDICATOR)

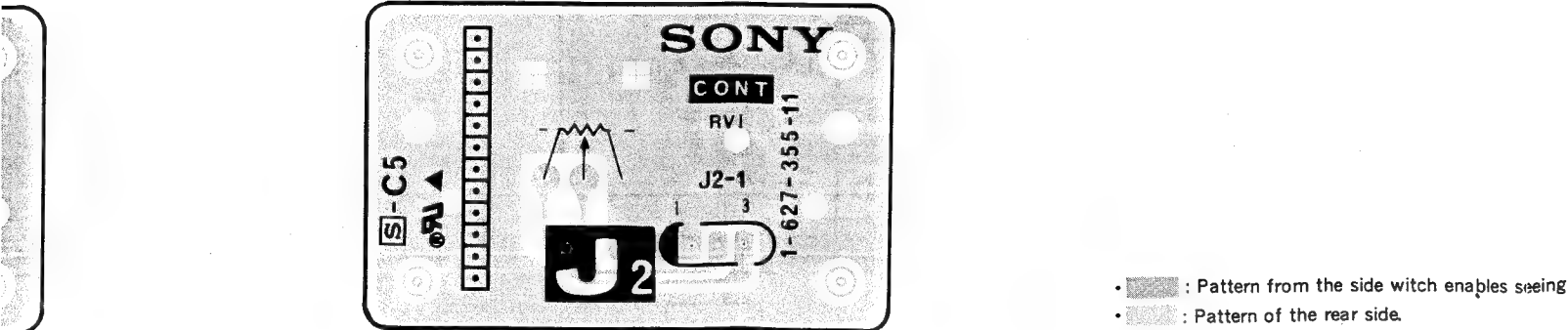
o. up-to 2,000,023)
o. up-to 2,000,005)

—T BOARD— (DDM-2801C; Serial No. up-to 2,000,018) (DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C; Serial No. 10,001—10,003) (DDM-2802C2; Serial No. up-to 2,000,001)



0,030)

—J2 BOARD— (DDM-2801C only, Serial No. up-to 10,030)



F

(POWER SW, AC FILTER, AC RECT, STBY 5V, STBY 12V)

—F BOARD— (DDM-2801C; Serial No. 2,000,014 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher)

L

(POWER/FAILURE, INDICATOR)

J3

(CUSTOMER CONTROL, DEGAUSS SW)

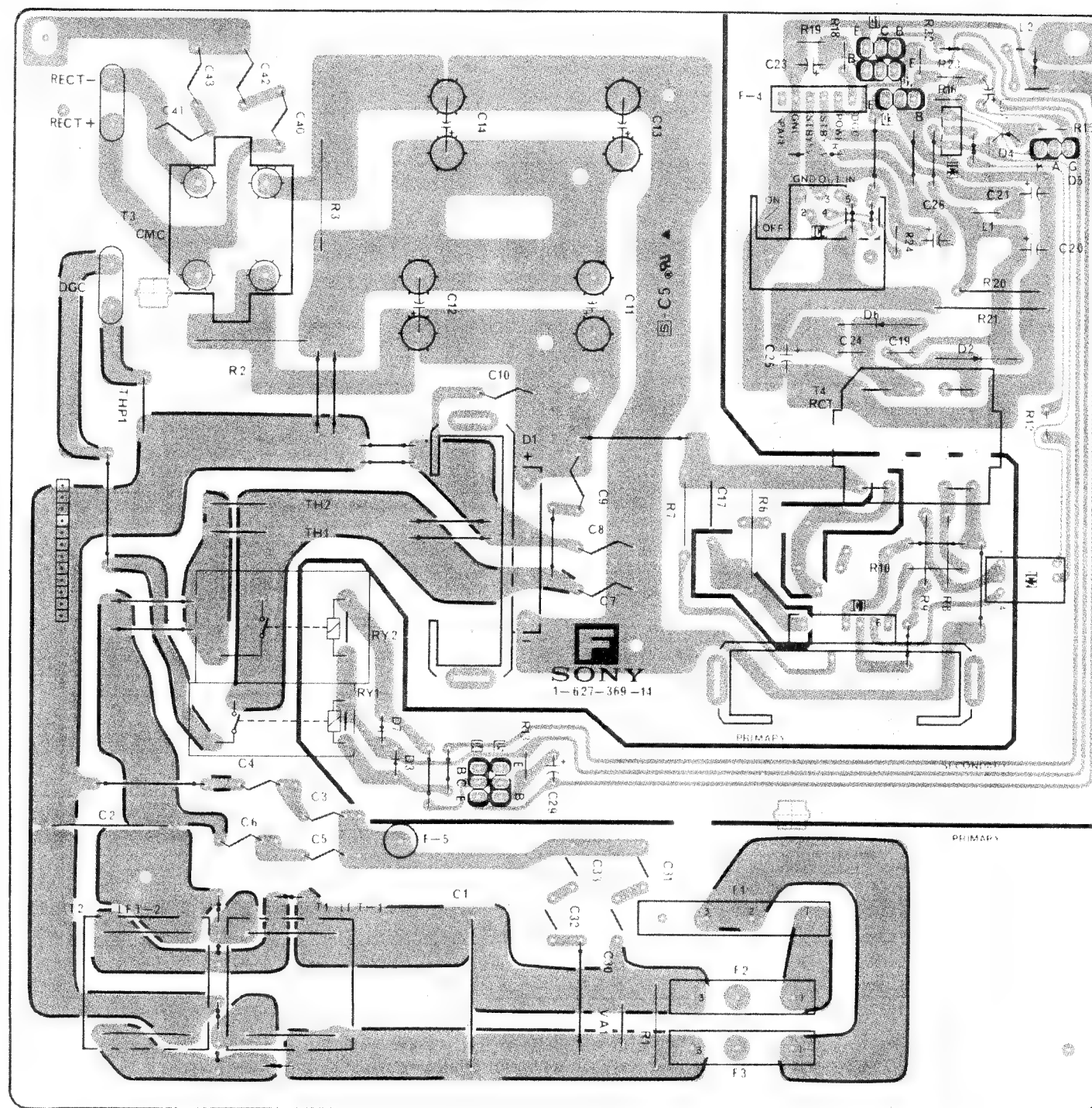
J1

(POWER INDICATOR, POWER SW)

J2

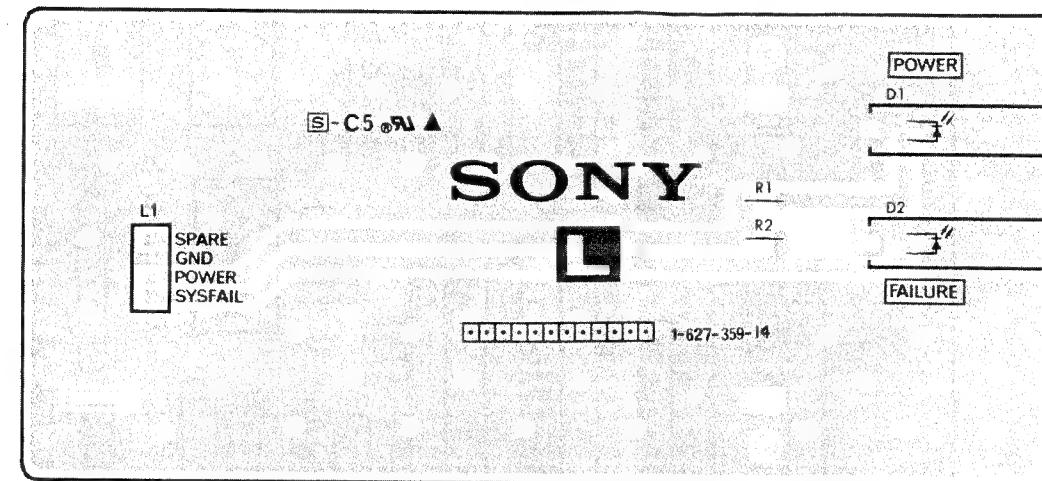
(CON)

—T BOARD— (DDM-2801C; Serial No. 2,000,019 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher)

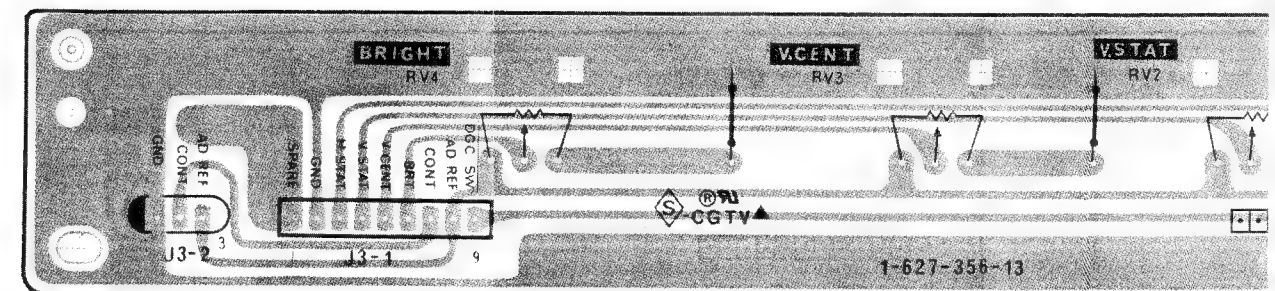


NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

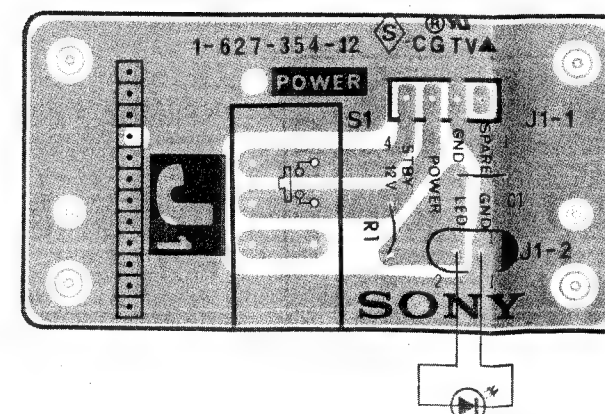
—L BOARD— (DDM-2801C; Serial No. 2,000,019 and higher)
(DDM-2802C; Serial No. 2,000,011 and higher)
(DDM-2801C2; Serial No. 2,000,024 and higher)
(DDM-2802C2; Serial No. 2,000,006 and higher)



—J3 BOARD— (DDM-2801C; Serial No. 2,000,019 and higher) (DDM-2801C2; Serial No. 2,000,004 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher) (DDM-2802C2; Serial No. 2,000,002 and higher)



—J1 Board— (DDM-2801C; Serial No. 10,031 and higher)
(DDM-2802C/2801C2/2802C2; Serial No. 10,001 and higher)

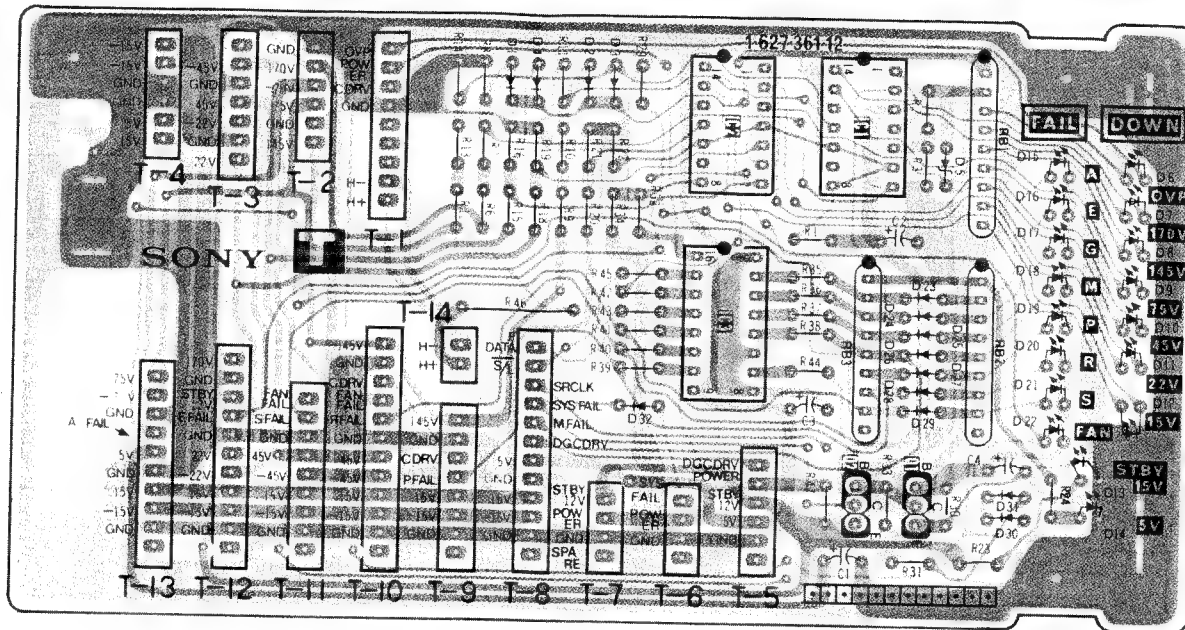


DDM-2801C/2802C
DDM-2801C2/2802C2

DDM-2801C/2802C
DDM-2801C2/2802C2

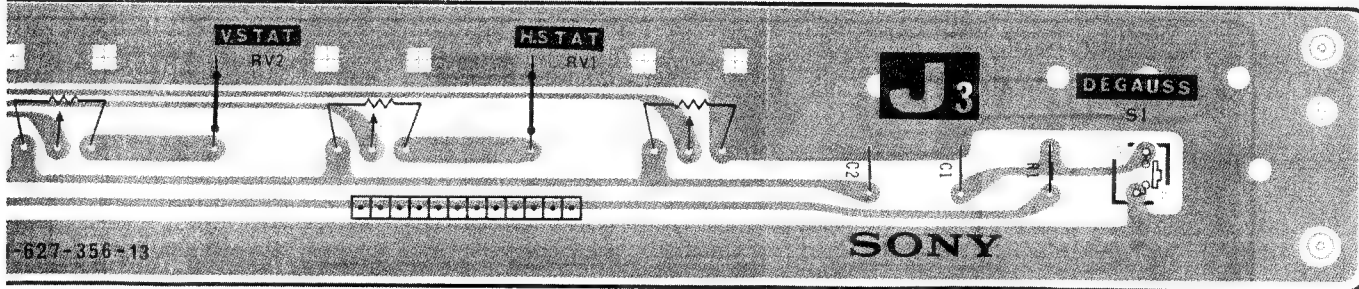
R, POWER SW) **J2** (CONTRAST) **T** (POWER DISTRIBUTION, FAILURE INDICATOR, VOLTAGE INDICATOR)

—T BOARD— (DDM-2801C; Serial No. 2,000,019 and higher) (DDM-2801C2; Serial No. 2,000,004 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher) (DDM-2802C2; Serial No. 2,000,002 and higher)

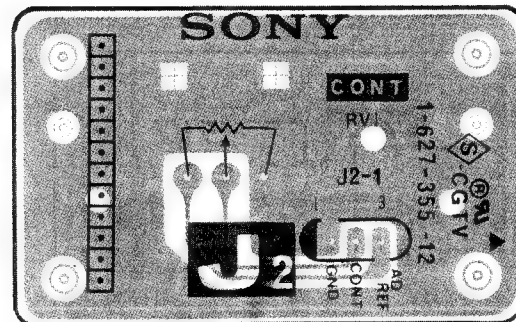


• : Pattern from the side witch enables seeing
• : Pattern of the rear side.

2; Serial No. 2,000,004 and higher)
2; Serial No. 2,000,002 and higher)



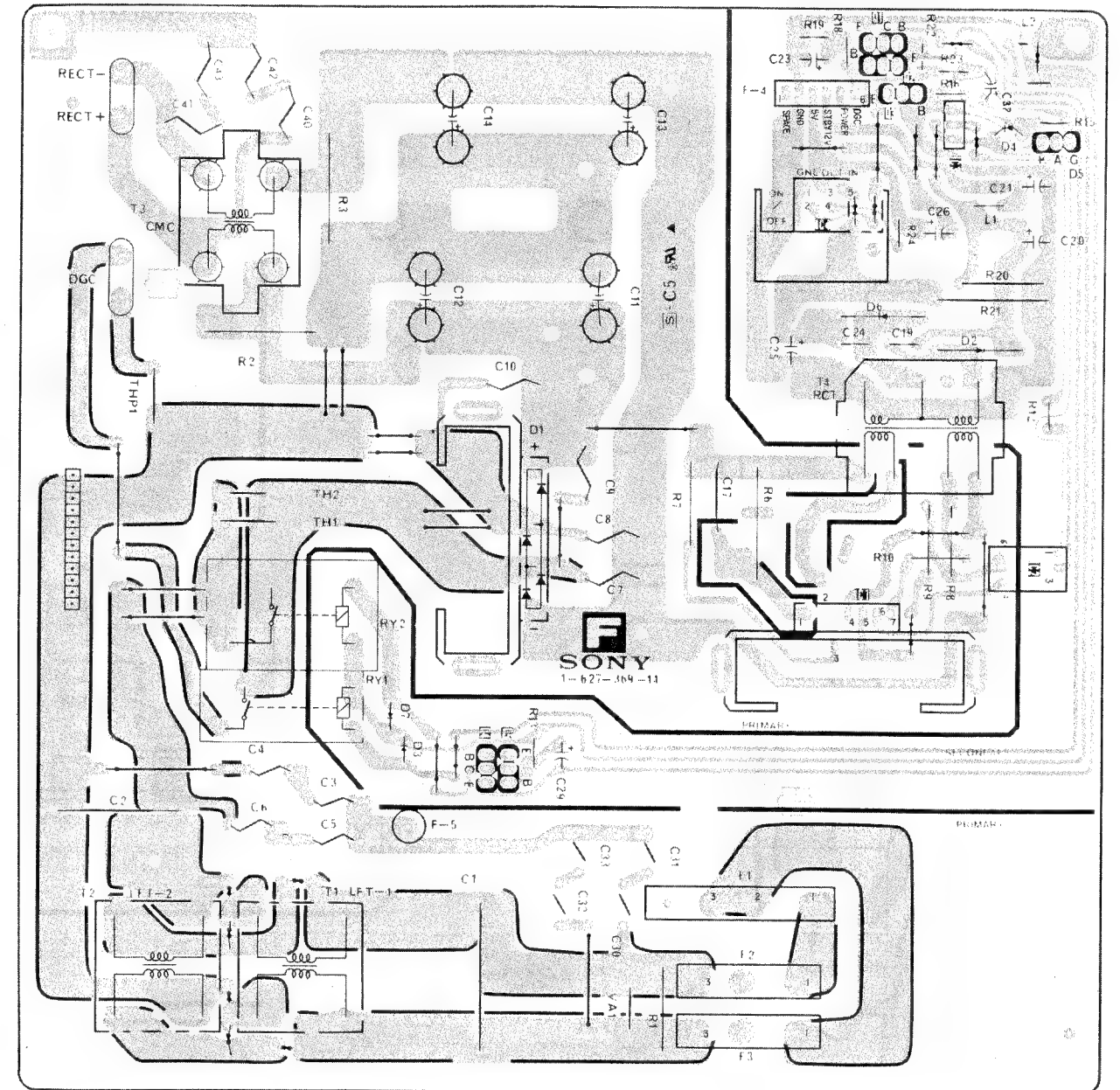
—J2 BOARD— (DDM-2801C; Serial No. 10,031 and higher)
(DDM-2802C/2801C2/2802C2; Serial No. 10,001 and higher)



F (POWER SW, AC FILTER, AC RECT, 5V, STBY 12V)

—F BOARD—

(DDM-2801C2; Serial No. up-to 10,001)
(DDM-2802C2; Serial No. up-to 10,001)



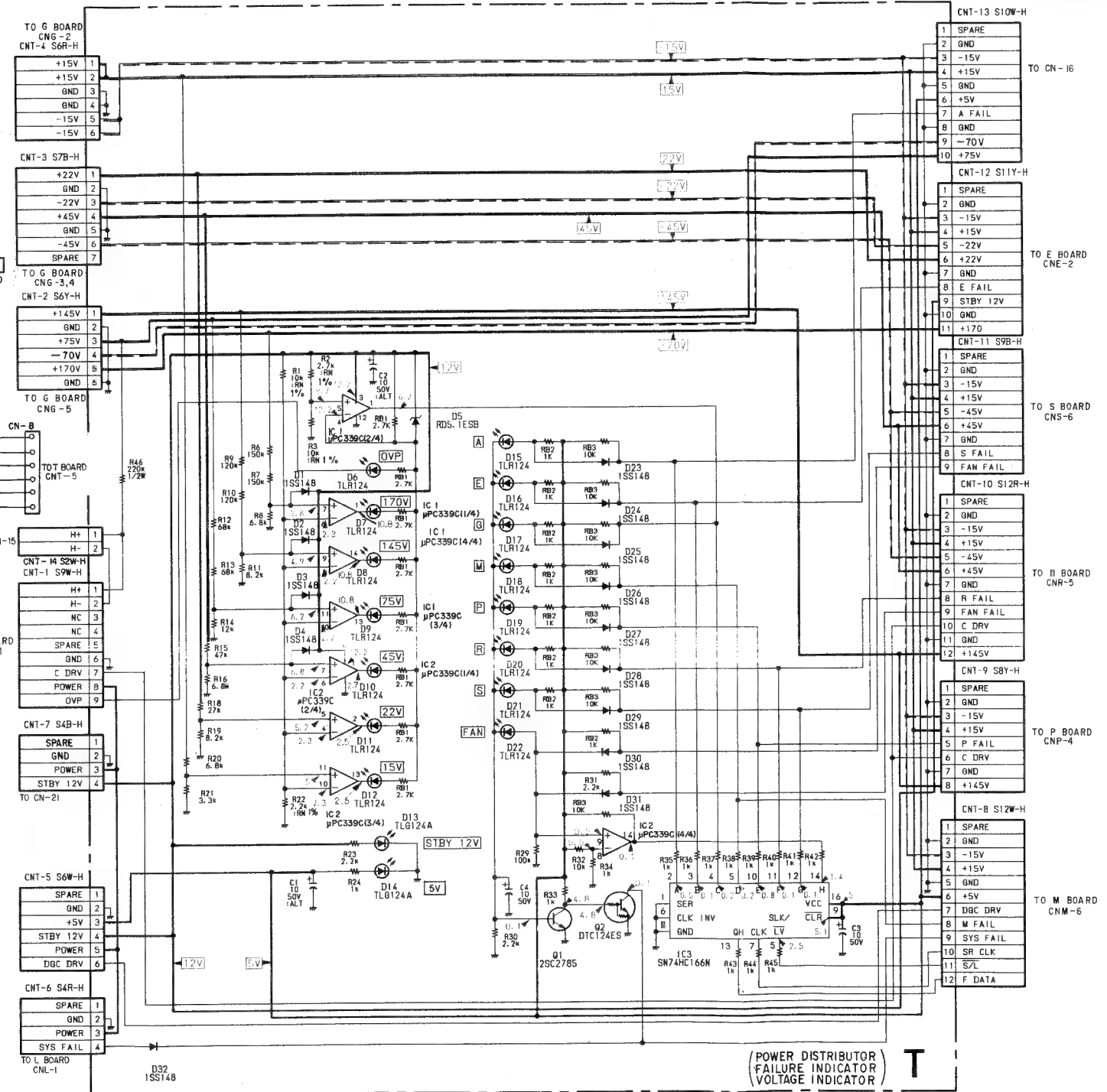
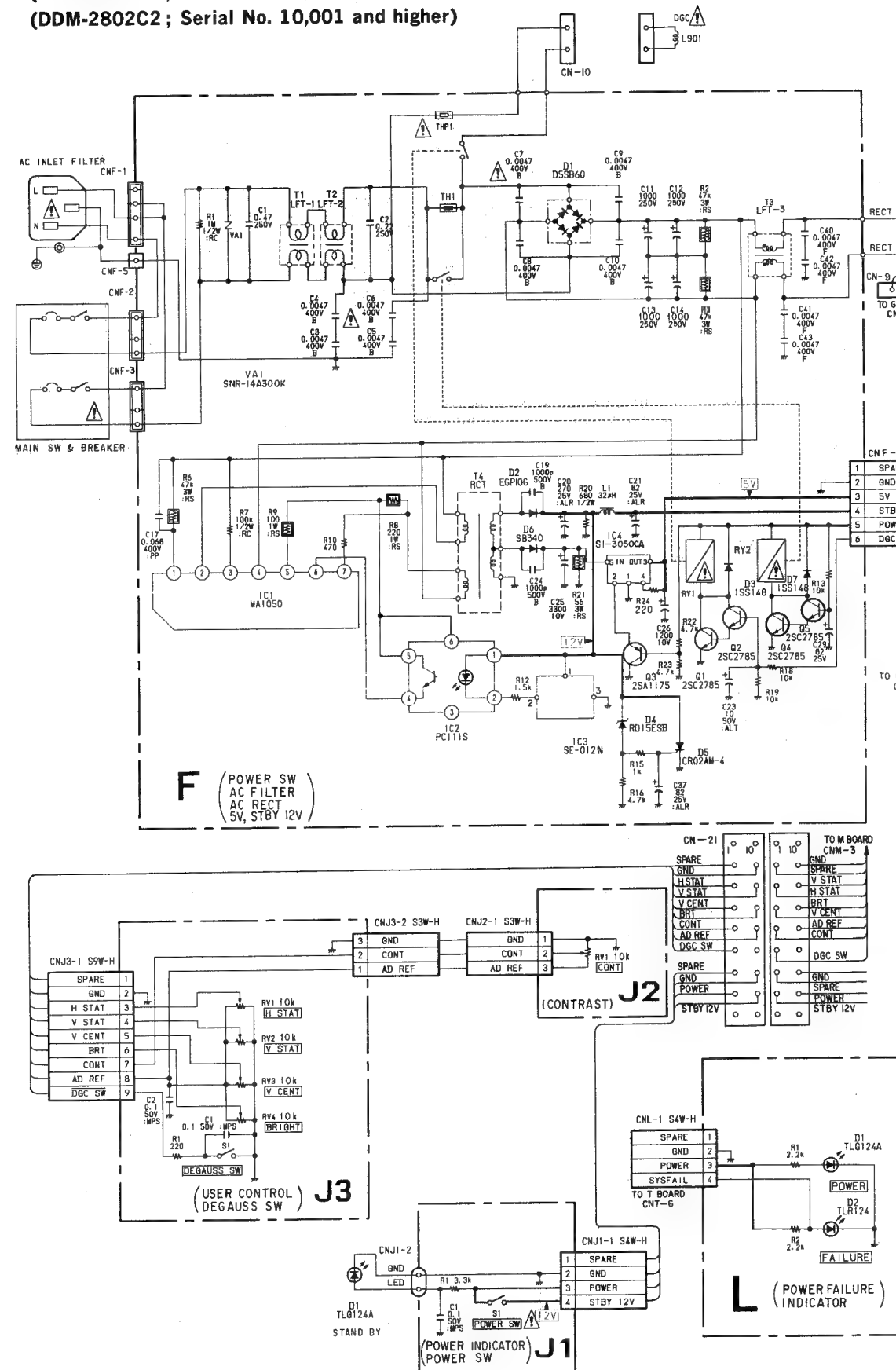
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

• F BOARD 200V-240V
(DDM-2801C2; Serial No. 10,001 and higher)
(DDM-2802C2; Serial No. 10,001 and higher)

• T BOARD
(DDM-2801C; Serial No. 2,000,019 and higher) (DDM-2801C2; Serial No. 2,000,004 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher) (DDM-2802C2; Serial No. 2,000,002 and higher)

• F BOARD
(DDM-2801C2; Serial No. 10,001 and higher)
(DDM-2802C2; Serial No. 10,001 and higher)

A
B
C
D
E
F
G
H
I
J



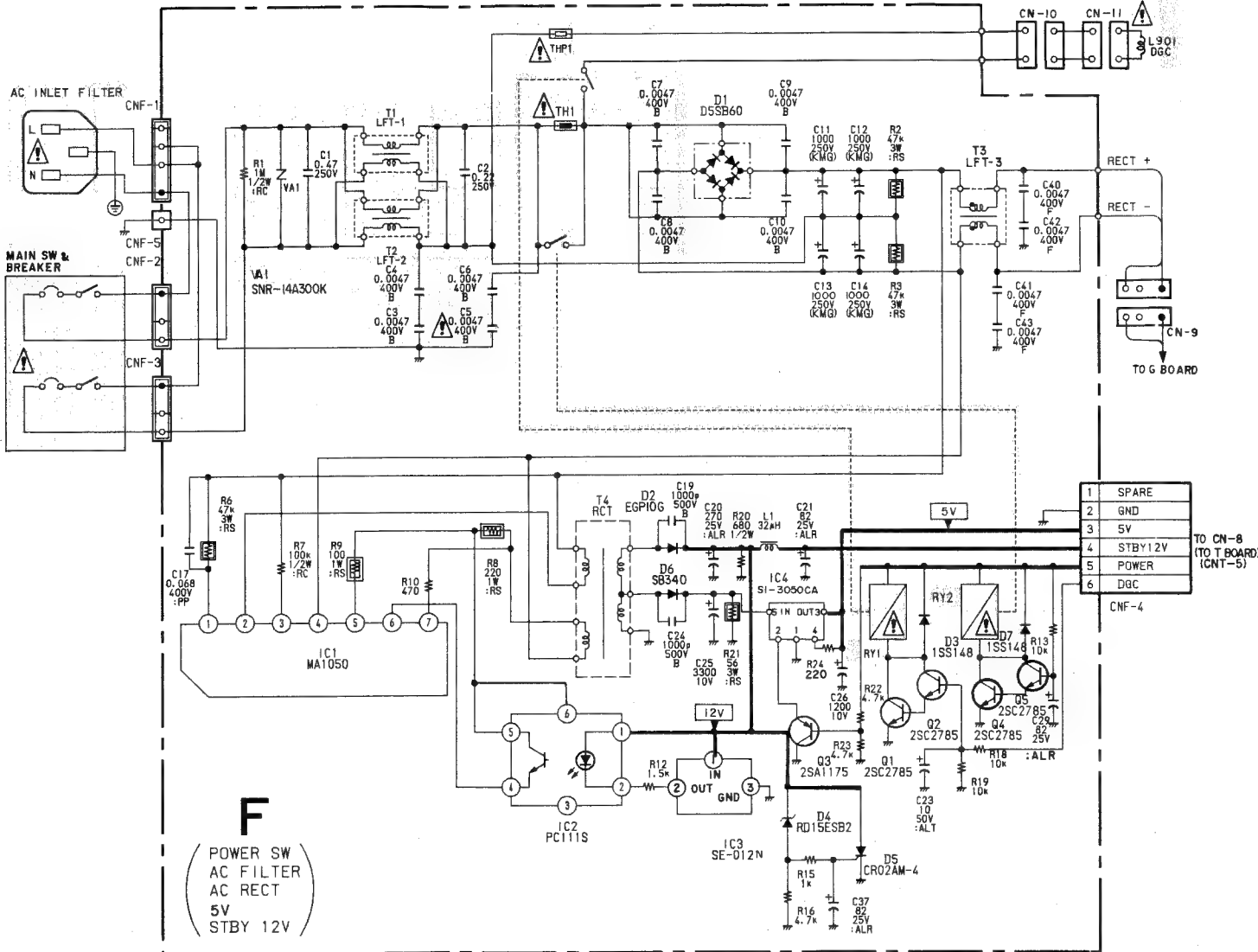
• J1 and J2 BOARD
(DDM-2801C; Serial No. 10,031 and higher)
(DDM-2802C/2801C2/2802C2; Serial No. 10,001 and higher)

• J3 BOARD
(DDM-2801C; Serial No. 2,000,019 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher)
(DDM-2801C2; Serial No. 2,000,004 and higher)
(DDM-2802C2; Serial No. 2,000,002 and higher)

• L BOARD
(DDM-2801C; Serial No. 2,000,019 and higher)
(DDM-2802C; Serial No. 2,000,011 and higher)
(DDM-2801C2; Serial No. 2,000,024 and higher)
(DDM-2802C2; Serial No. 2,000,006 and higher)


Note:
Note


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er)
• F BOARD 100V—120V
(DDM-2801C2; Serial No. 10,001 and higher)
(DDM-2802C2; Serial No. 10,001 and higher)



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1000

Note:

Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et par une marque  sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

—F Board—

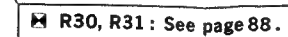
IC1	MA1050	CONVERTER DRIVE/OUT
2	PC111S	PHOTO CUPPLER
3	SE012	12V ERROR AMP
4	SI3050C	5V REGULATOR
Q1	2SC2785	RY1 DRIVE 1
2	2SC2785	RY1 DRIVE 2
3	2SC2785	RY2 DRIVE 1
4	2SC2785	RY2 DRIVE 2
5	2SA1175	5V ON/OFF SWITCH
D1	D5SB60	AC RECT
2	RU2M	STBY 12V RECT
3	1SS148	RY1 PROTECT
4	RD15	12V OVER VOLTAGE DET.
5	CRO2AM4	12V OVER VOLTAGE PROTECTOR
6	ERC81-004	5V RECT
7	1SS148	RY2 PROTECT

—L Board—

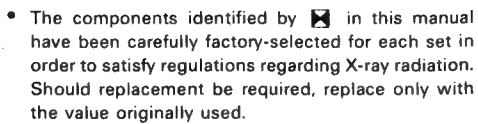
D1	POWER INDICATOR
2	FAILURE INDICATOR


—T Board—

IC1	COMPARATOR
2	COMPARATOR
3	SHIFT REGISTER
Q1	FAIL
2	SYSTEM FAIL
D1	CLAMP
2	CLAMP
3	CLAMP
4	CLAMP
5	ZENER DIODE
6	OVP INDICATOR
7	170V INDICATOR
8	145V INDICATOR
9	75V INDICATOR
10	45V INDICATOR
11	22V INDICATOR
12	15V INDICATOR
13	STBY 12V INDICATOR
14	5V INDICATOR
15	A INDICATOR
16	E INDICATOR
17	G INDICATOR
18	M INDICATOR
19	P INDICATOR
20	R INDICATOR
21	S INDICATOR
22	FAN INDICATOR
23	A SWITCH
24	E SWITCH
25	G SWITCH
26	M SWITCH
27	P SWITCH
28	R SWITCH
29	S SWITCH
30	FAN SWITCH
31	FAN SWITCH



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Note: Les composants identifiés par une trame et par une marque  sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

—G Board—

IC101	OSC/PRE DRIVE
102	PLL
Q101	PULSE WIDTH LIMIT
102	H SAW GENERATOR 1
103	H SAW GENERATOR 2
104	CURRENT SOURCE
D101	OVER VOLTAGE PROTECTOR
102	CURRENT SOURCE

IC201	+15V ERROR AMP
202	+45V ERROR AMP
203	OVP COMPARATOR
204	2.5V ZENOR
Q201	+15V REGULATOR
202	+45V REGULATOR
203	+15V SOFT START
204	-45V CURRENT LIMIT
205	+45V CURRENT LIMIT
206	+45V SOFT START
D201	SOFT START SWITCH

IC301	145V ERROR AMP
302	75V ERROR AMP
303	OVP COMPARATOR
Q301	145V REGULATOR
302	75V REGULATOR
303	145V CURRENT LIMIT
304	145V SOFT START
305	75V CURRENT LIMIT
306	75V SOFT START
D301	145V SOFT START SWITCH
302	75V SOFT START SWITCH

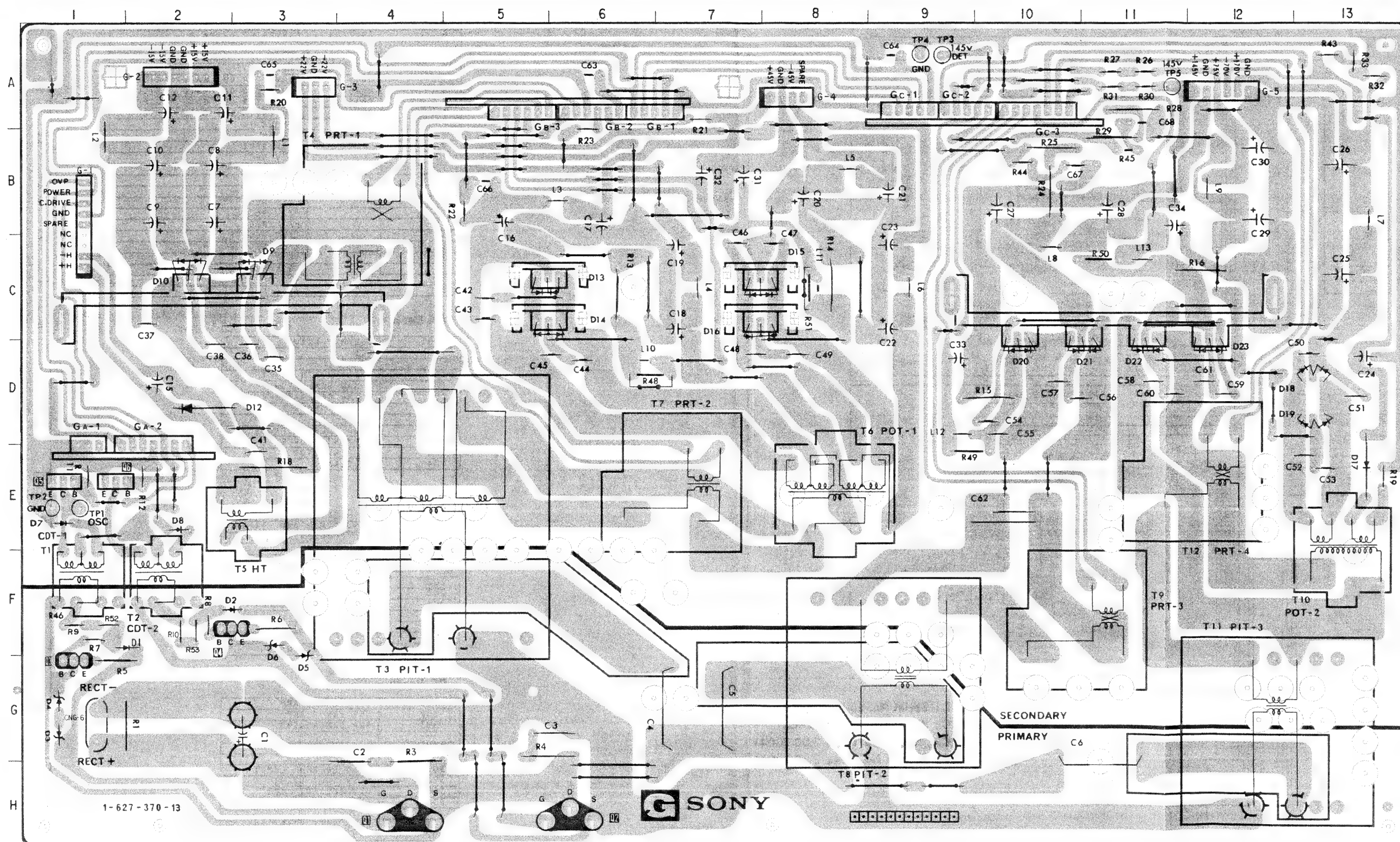
G

(LOW VOLTAGE POWER SUPPLY)

—G BOARD— (DDM-2801C; Serial No. 2,000,006 and higher)
 (DDM-2802C; Serial No. 2,000,001 and higher)
 (DDM-2801C2; Serial No. 2,000,004 and higher)
 (DDM-2802C2; Serial No. 2,000,002 and higher)

DDM-2801C/2802C
 DDM-2801C2/2802C2

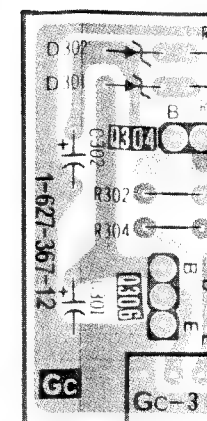
DDM-2801C/2802C
 DDM-2801C2/2802C2



G

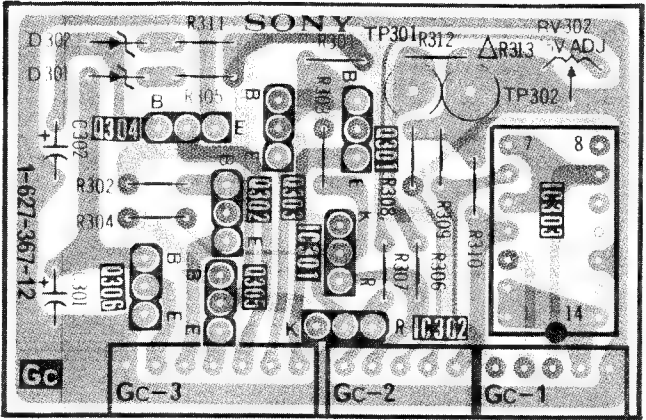
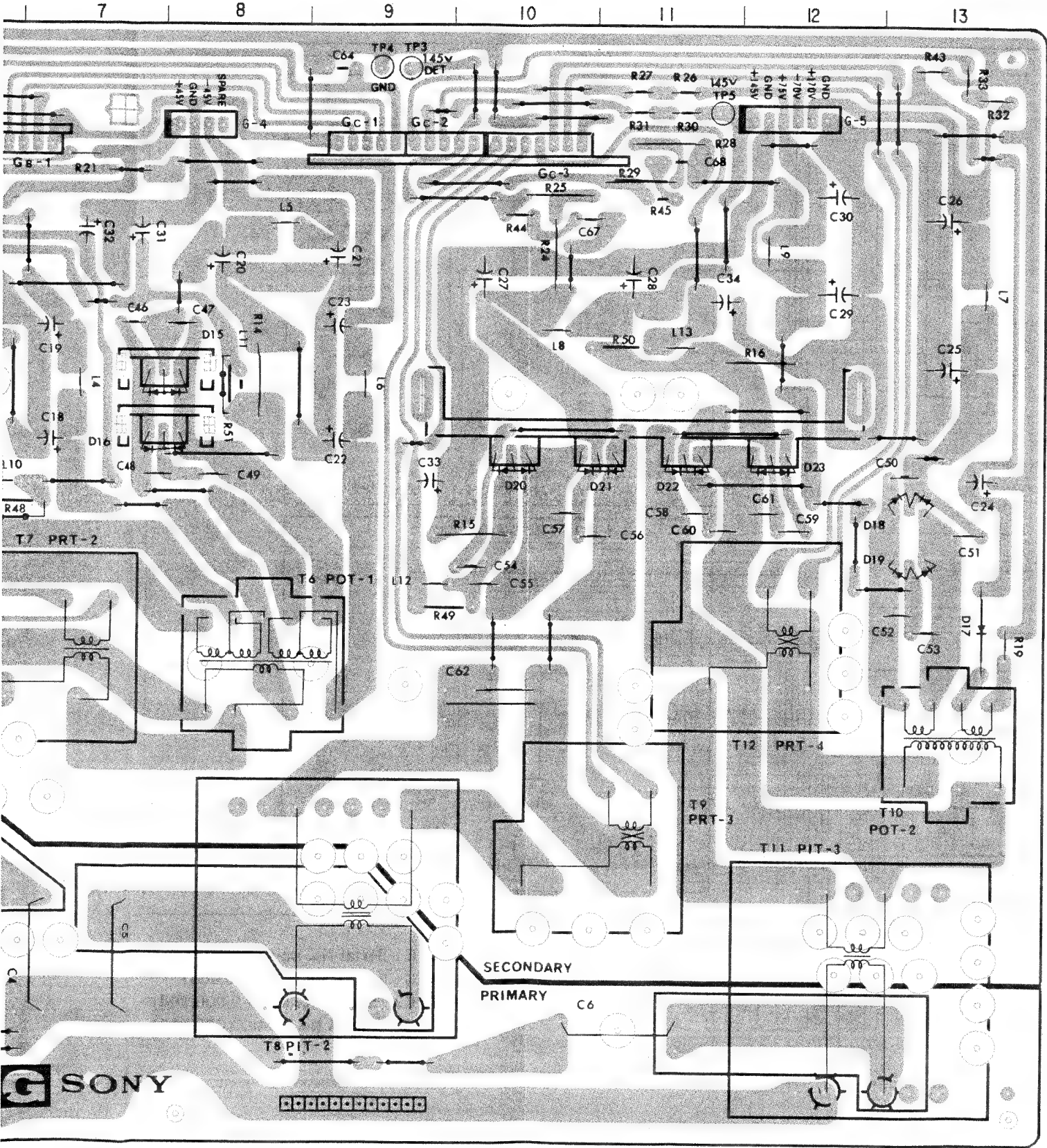
GC

—GC BOARD—



G **GC** (HIGH B REGULATE and OVP)

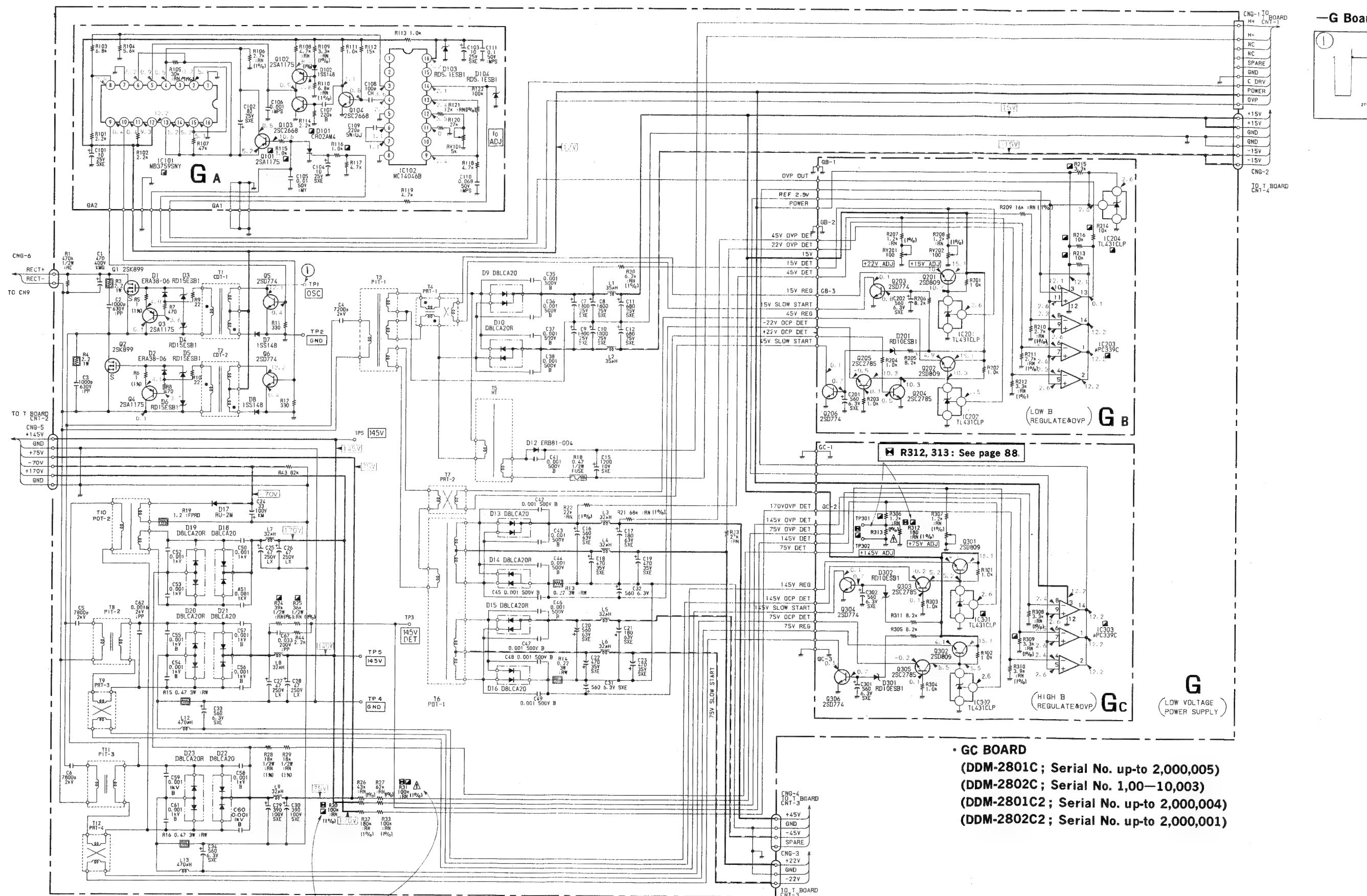
—GC BOARD— (DDM-2801C; Serial No. 2,000,006 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher)
(DDM-2801C2; Serial No. 2,000,004 and higher)
(DDM-2802C2; Serial No. 2,000,002 and higher)



• : Pattern from the side witch enables seeing
• : Pattern of the rear side.

NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

• G, GA, GB, GC BOARDS (DDM-2801C; Serial No. up-to 2,000,005) (DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C; Serial No. 10,001—10,003) (DDM-2802C2; Serial No. up-to 2,000,001)

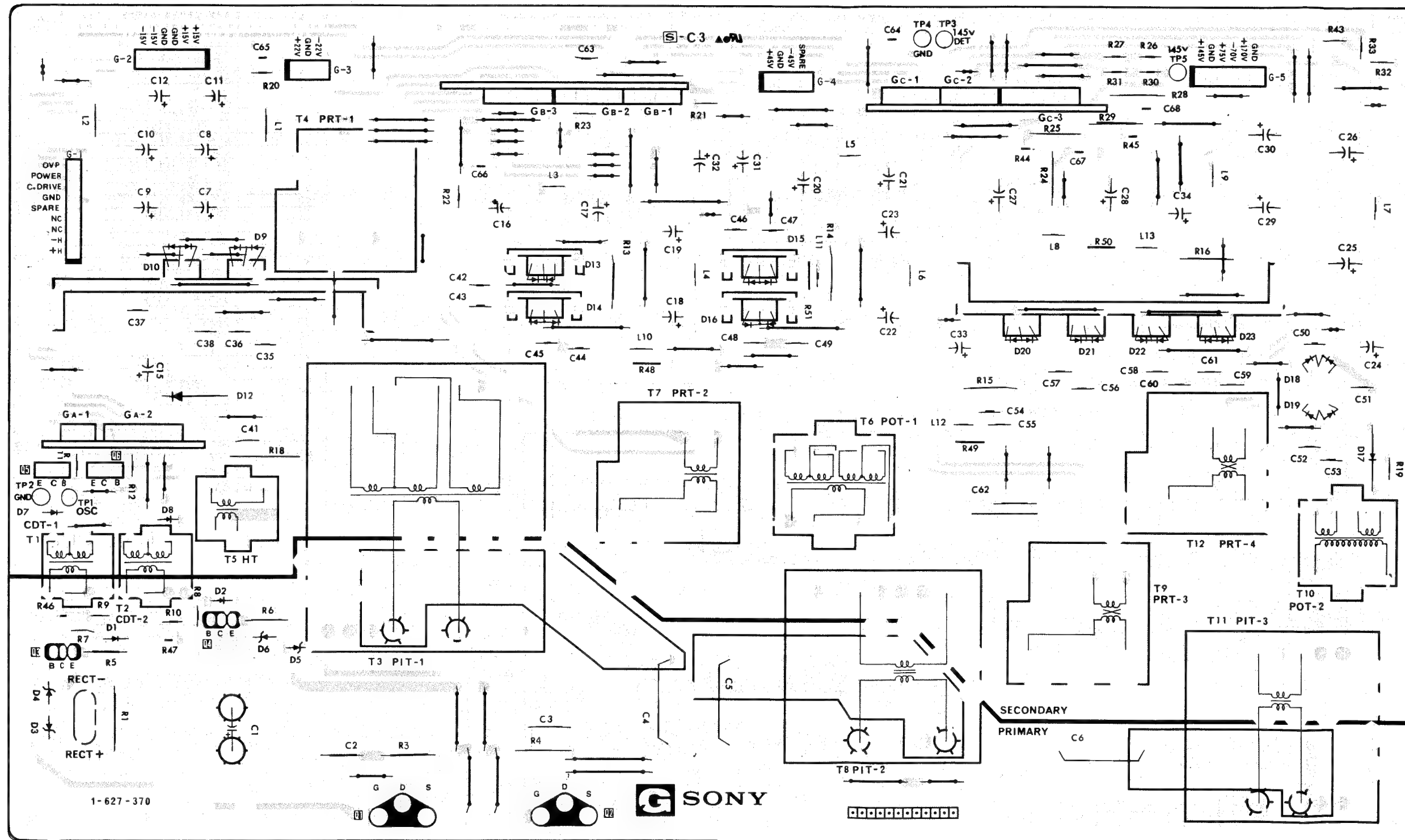


IC301	145V ERROR AMP
302	75V ERROR AMP
303	OVP COMPARATOR
Q301	145V REGULATOR
302	75V REGULATOR
303	145V CURRENT LIMIT
304	145V SOFT START
305	75V CURRENT LIMIT
306	75V SOFT START
D301	145V SOFT START SWITCH
302	75V SOFT START SWITCH

G

(LOW VOLTAGE POWER SUPPLY)

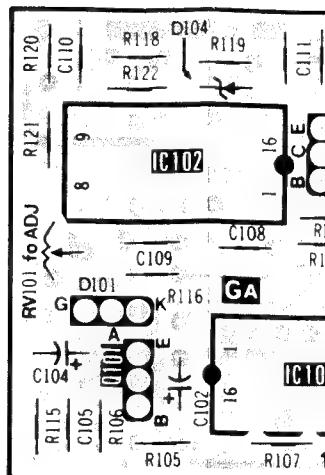
—G BOARD— (DDM-2801C; Serial No. up-to 2,000,005) (DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C; Serial No. 10,001–10,003) (DDM-2802C2; Serial No. up-to 2,000,001)



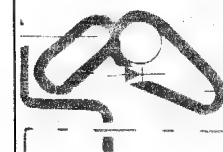
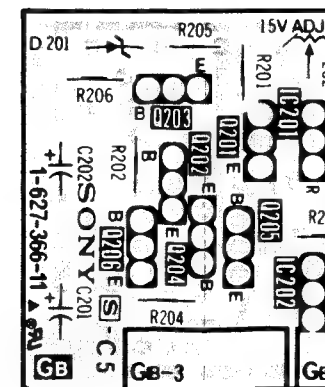
G

GA

—GA Board—

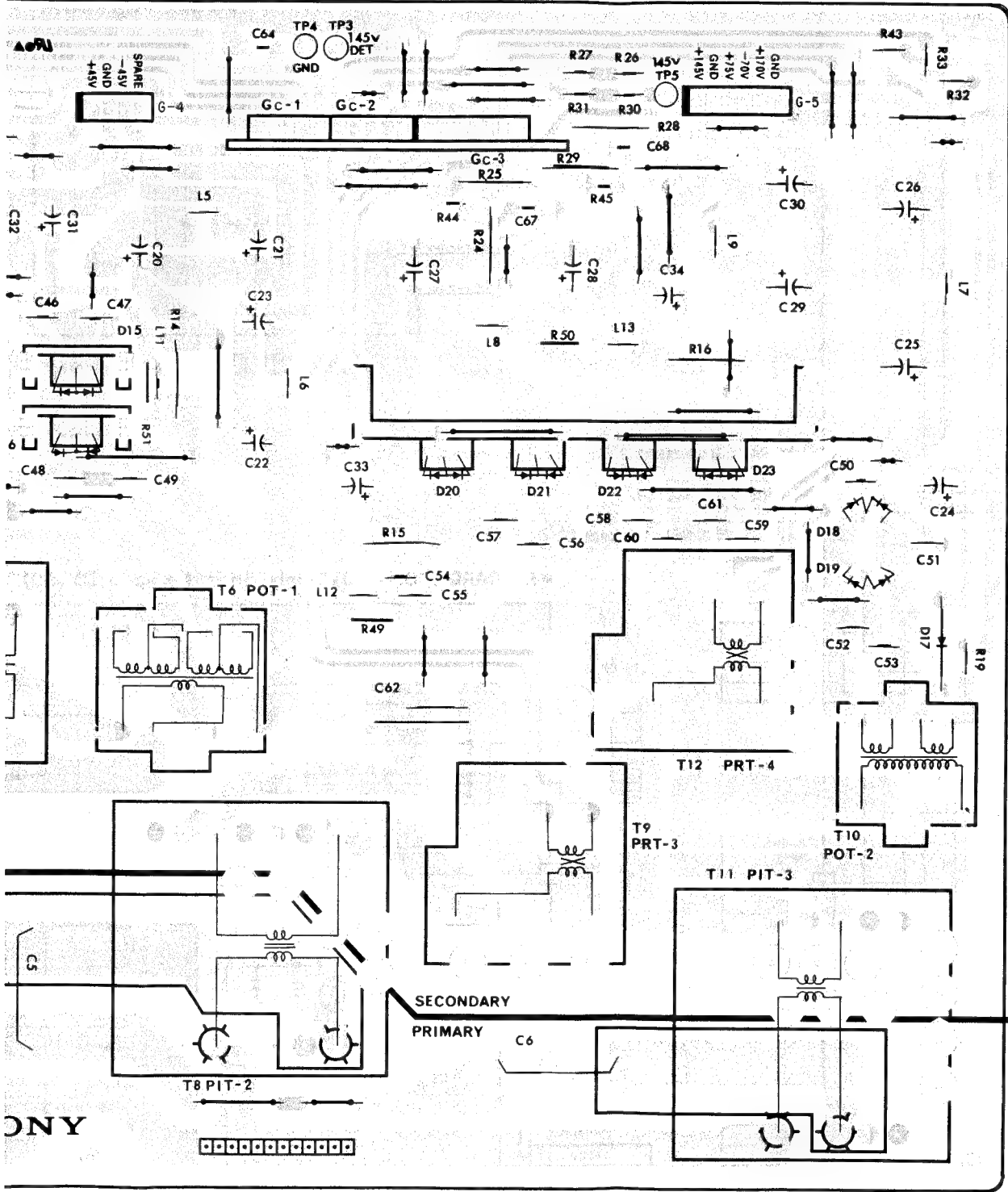


—GB Board—

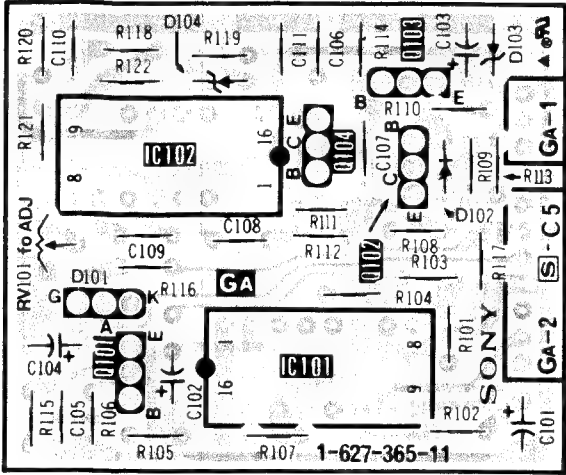


NOTE:
The circuit indicated as 1
600 Vp-p. Care must be p
inspection or repair ring.

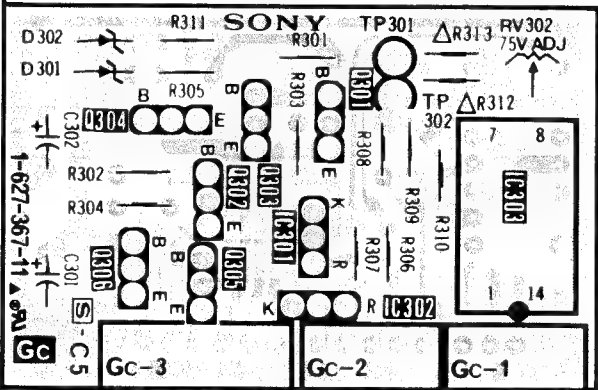
G GA GB GC



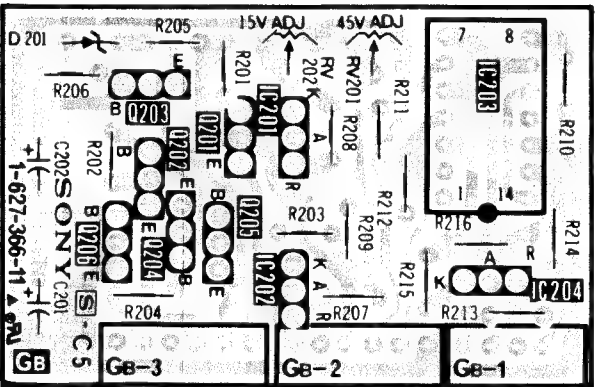
—GA Board—



—GC Board— (DDM-2801C; Serial No. up-to 2,000,005)
(DDM-2802C; Serial No. 1,00—10,003)
(DDM-2801C2; Serial No. up-to 2,000,004)
(DDM-2802C2; Serial No. up-to 2,000,001)



—GB Board—

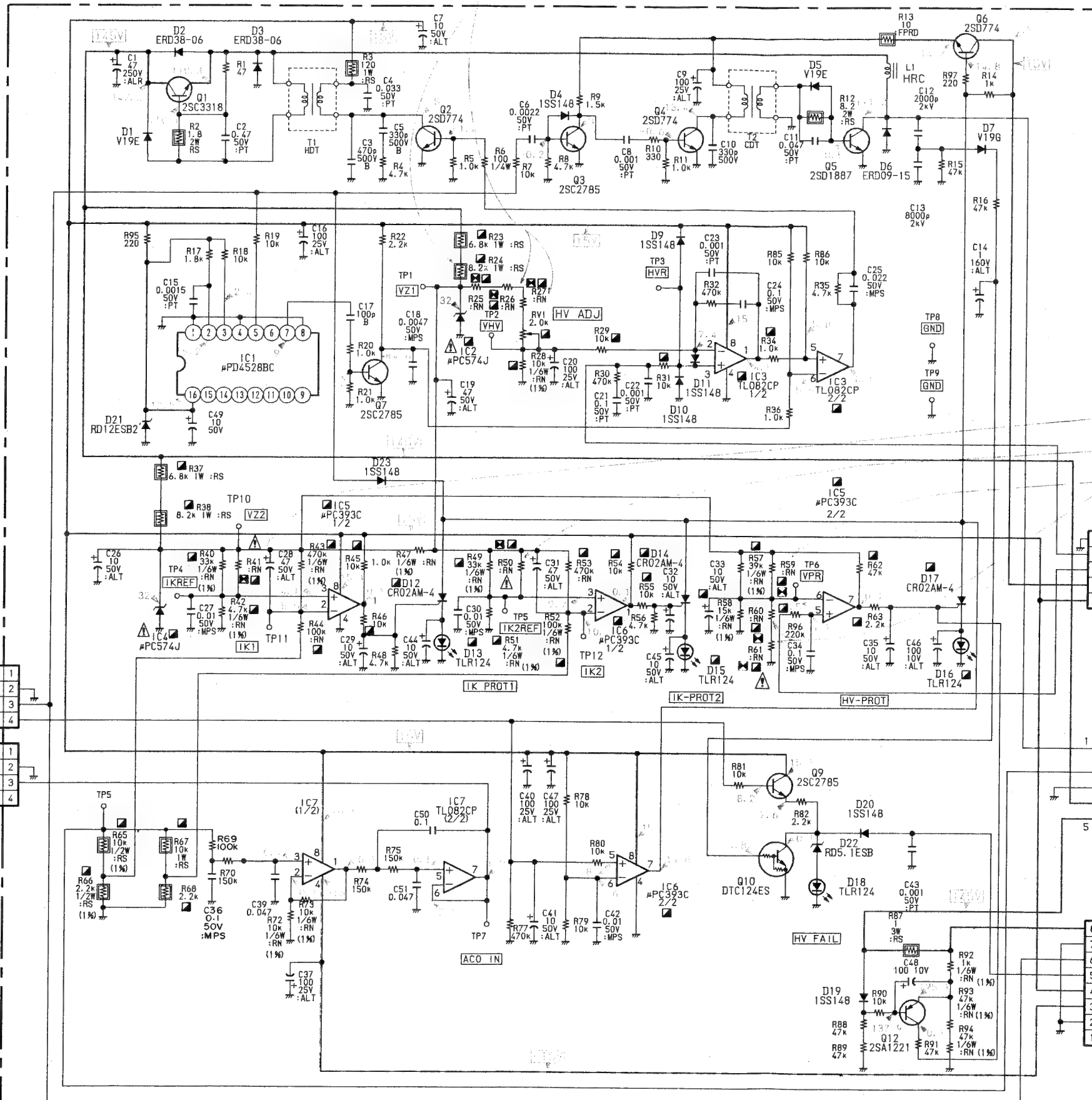


NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

- : Pattern from the side witch enables seeing
- : Pattern of the rear side.

• P BOARD (DDM-2801C only, Serial No. up-to 10,020)

• R25, R26, R27: See page 90.



TO E BOARD
CNE-3

SPARE	1
GND	2
C DRV	3
VH STP	4

TO M BOARD
CNM-B

SPARE	1
GND	2
ACO IN	3
SPARE	4

• R41: See page 91.

• R50: See page 93.

• R59, R60, R61: See page 90.

TO CN7
CNP-1 S5R-H

1	GND
2	HVR
3	PRT
4	+15V
5	+15V

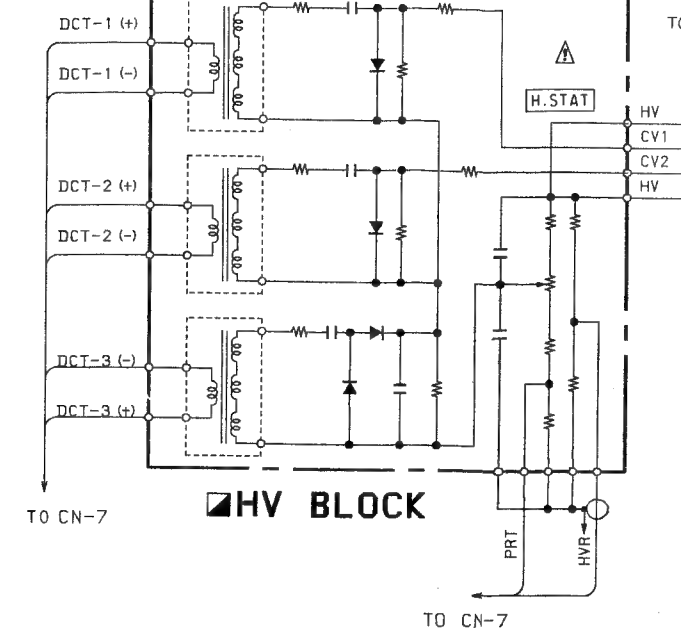
TO CN6
CNP-5 C

1	ABL
2	GND
3	145V
4	145V

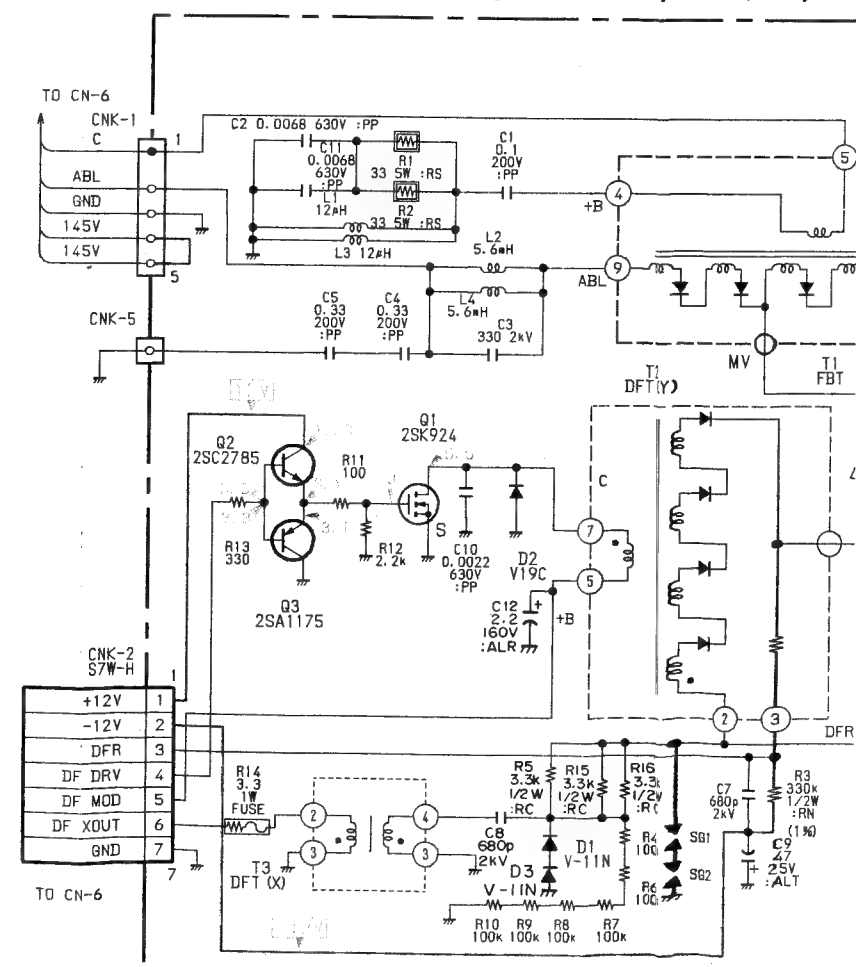
TO CN6
CNP-4 S8W-H

8	145V
7	GND
6	C DRV
5	P FAIL
4	15V
3	-15V
2	GND
1	SPARE

TO T BOARD
CNT-9



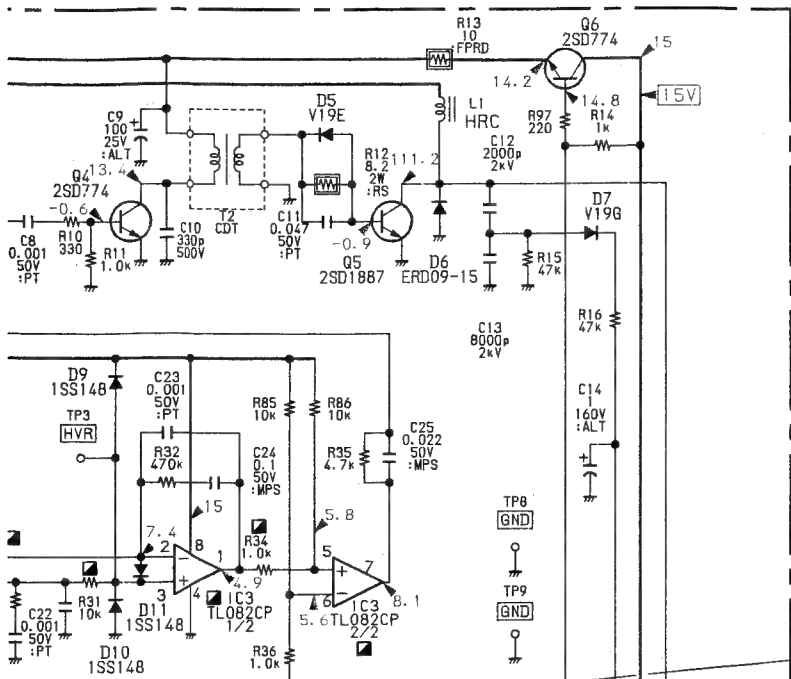
• K BOARD (DDM-2801C only, Serial No. up-to 10,090)



TO CN-6
CNK-2 S7W-H

1	+12V
2	-12V
3	DFR
4	DF DRV
5	DF MOD
6	DF XOUT
7	GND

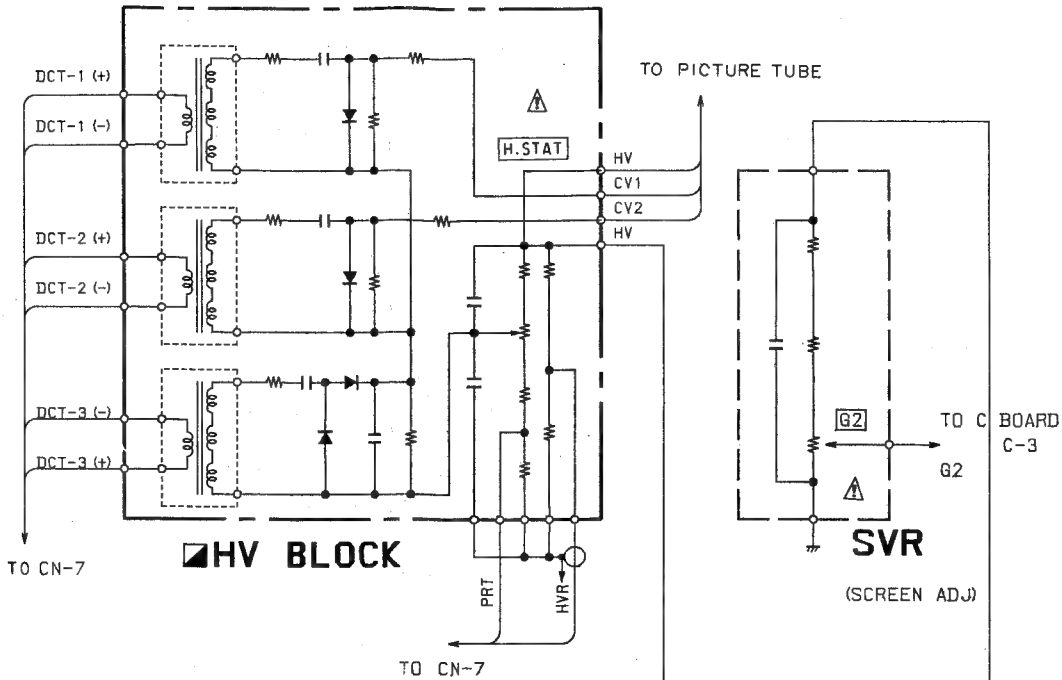
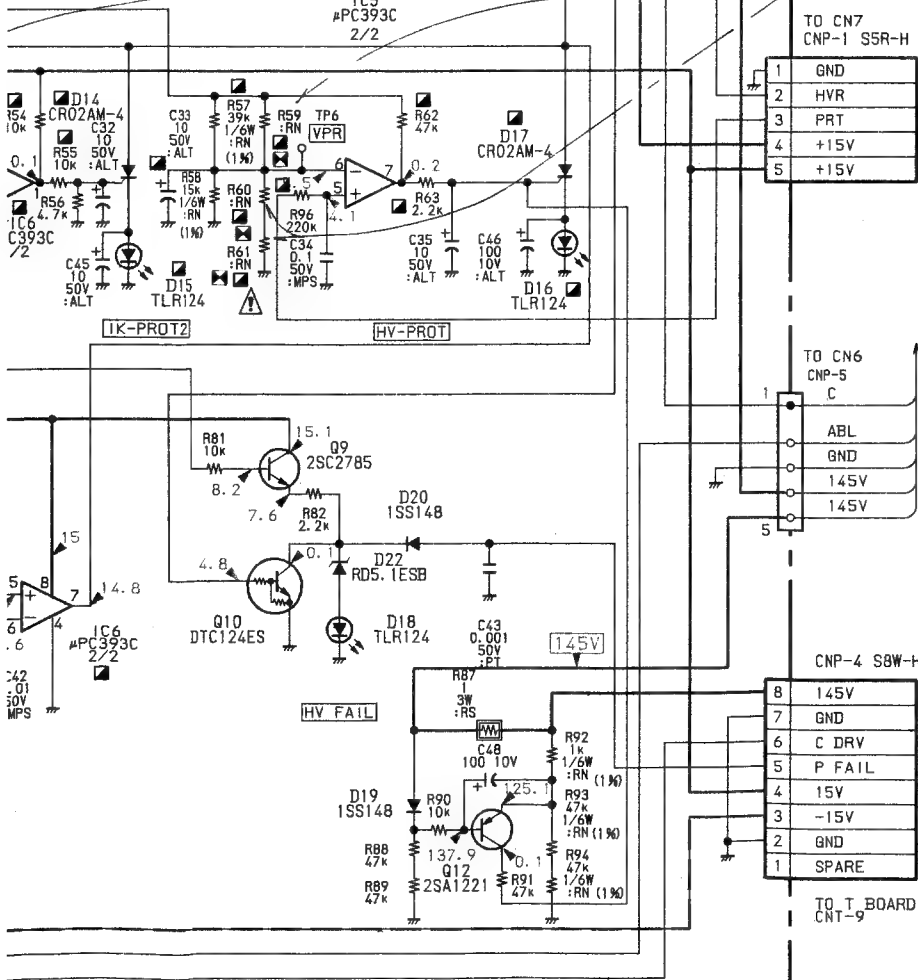
age 90.



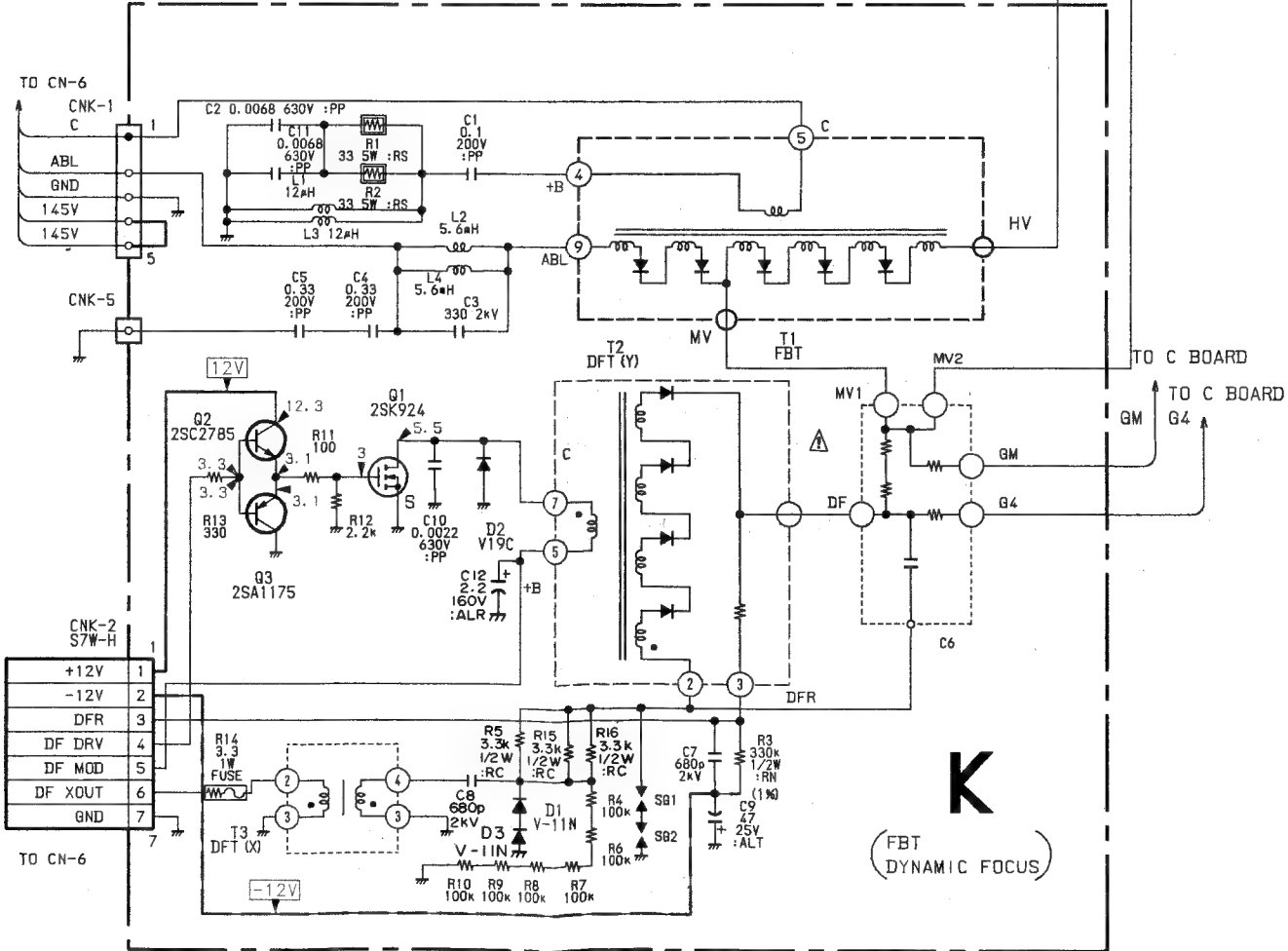
R41 : See page 91.

R50 : See page 93.

R59, R60, R61 : See page 90.



• K BOARD (DDM-2801C only, Serial No. up-to 10,090)



-P Board-

IC1	MONO MULTI
2	32V ZENER DIODE
3	ERROR AMP
4	32V ZENER DIODE
5	HV PROTECT
6	IK PROTECT
7	IK AMP
Q1	HV CONTROL OUT
2	HV CONTROL DIRVE
3	HV PRE DRIVE
4	CONV DRIVE
5	CONV OUT
6	HV PROTECT OUT
7	HV SAW
9	VH STOP
10	HV STOP
12	CURRENT LIMIT
D1	HV DRIVE
2	HV OUT
3	HV OUT
4	SPEED UP
5	CONT DRIVE
6	DAMPER DIODE
7	HV RECT
9	PROTECT
10	PROTECT
11	PROTECT
12	IK PROT 1 OUT
13	IK PROT 1 LED
14	IK PROT 2 OUT
15	IK PROT 2 LED
16	HV PROT LED
17	HV PROT OUT
18	HV FAIL LED
19	BIAS
20	P FAIL
21	ZENER DIODE
22	BIAS
23	VH STOP

-K Board-

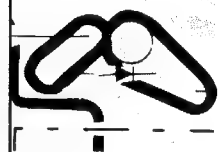
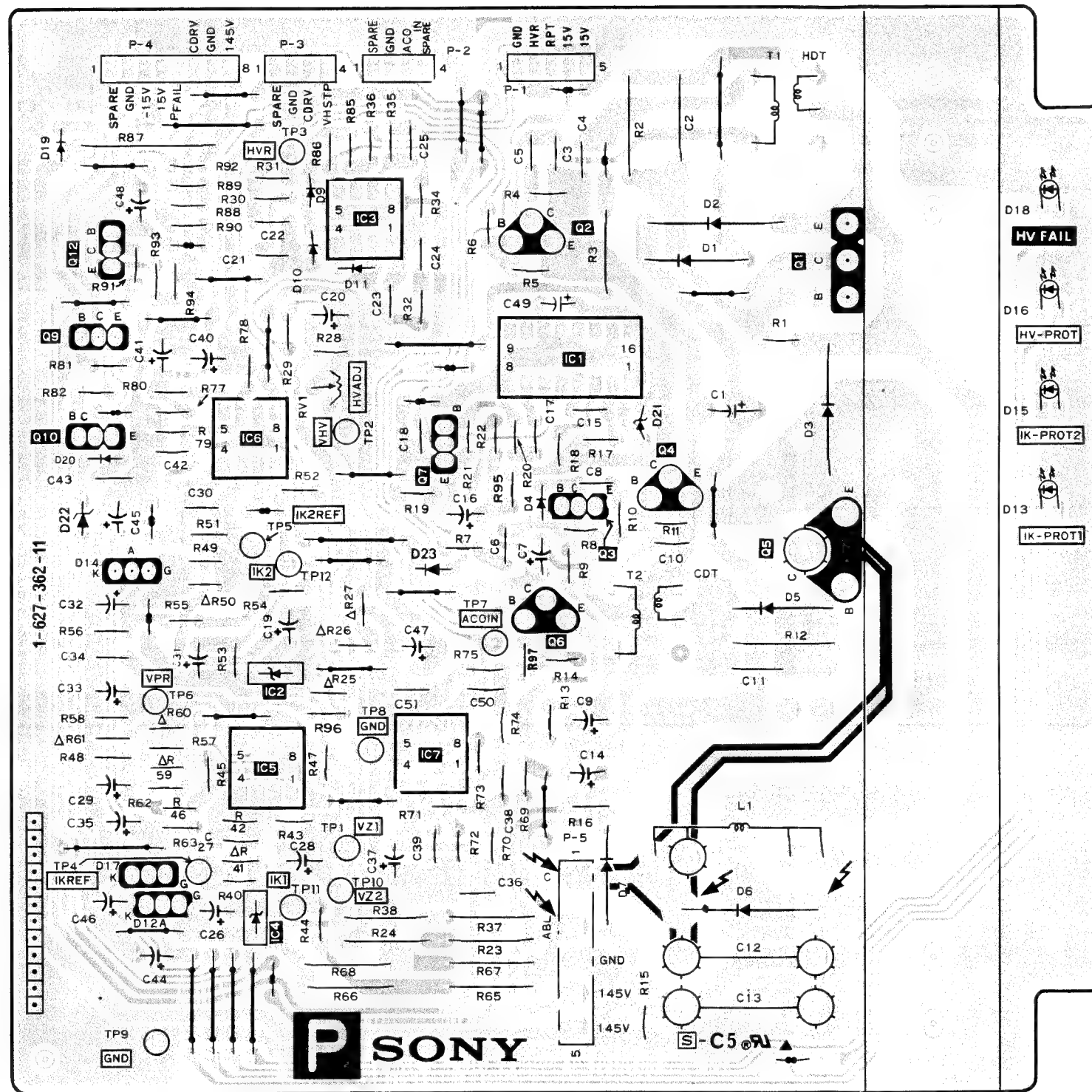
Q1	FOCUS OUT
2	BUFFER 1
3	BUFFER 2
D1	CLAMP 1
2	DAMPER
3	CLAMP 2

P

(HV REGULATOR, HV PROTECTOR)

—P BOARD— (DDM-2801C only, Serial No. up-to 10,020)

IC	Q	D	RV	TP
				3
		19		
		9	18	
3	12	2	10	2
		11		
			16	
	9			
		15		
6	10	21	3	
	7	20		2
		4	13	
	3	22		
	5	23		5
	6	5		12
				7
2				6
				8
5	7			
		7		1
		17		4
4		12	6	10
				11
				9

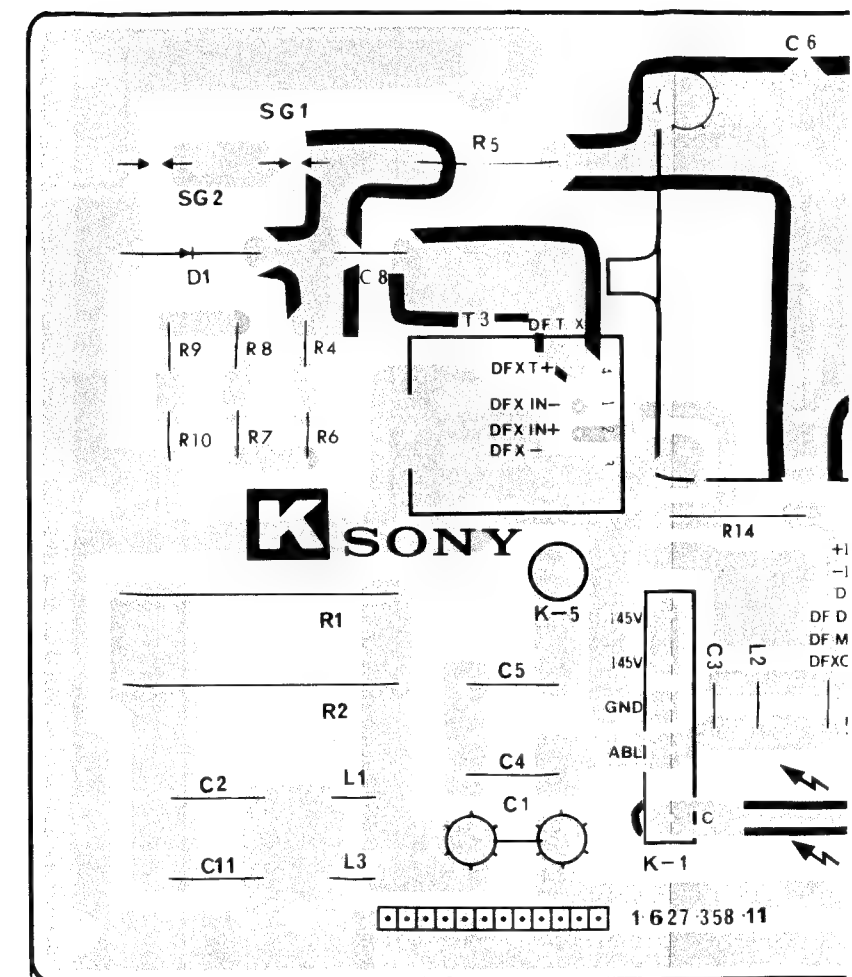
**NOTE:**

The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

K

(FBT, DYNAMIC FOCUS)

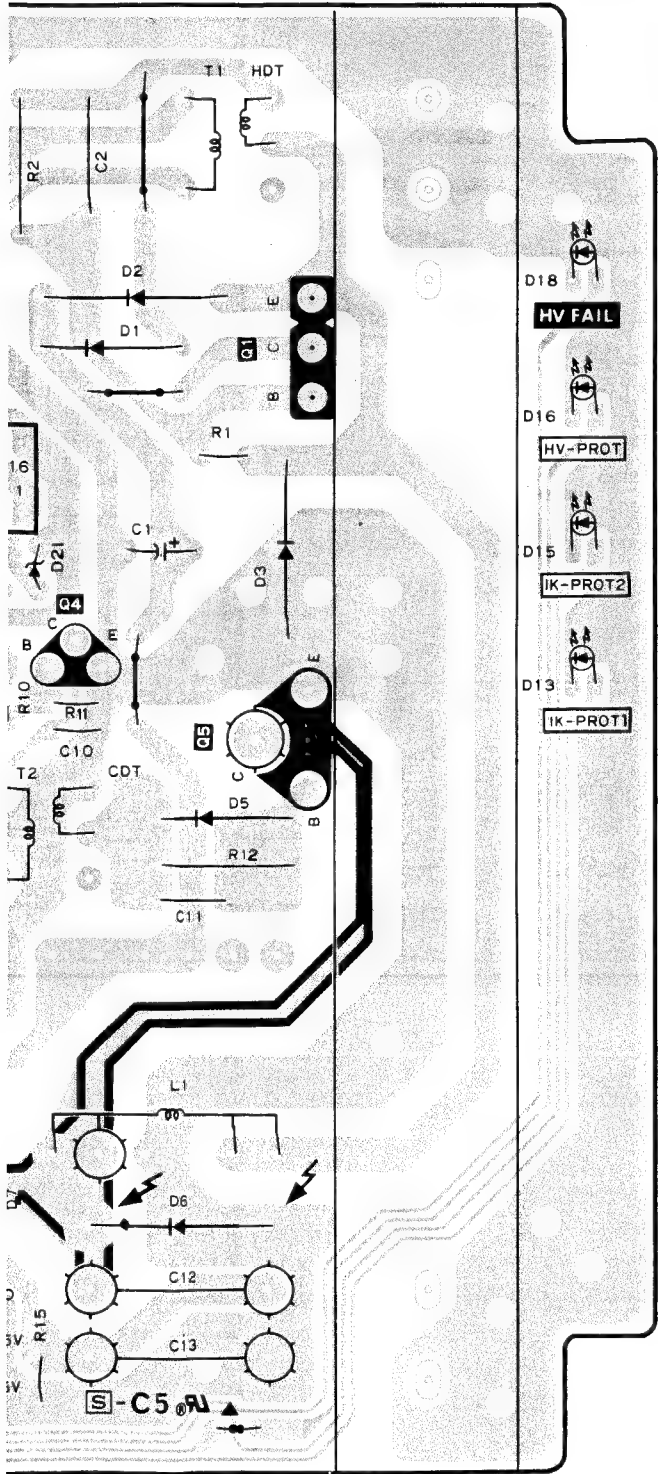
—K BOARD— (DDM-2801C only, Serial No. up-to 10,090)



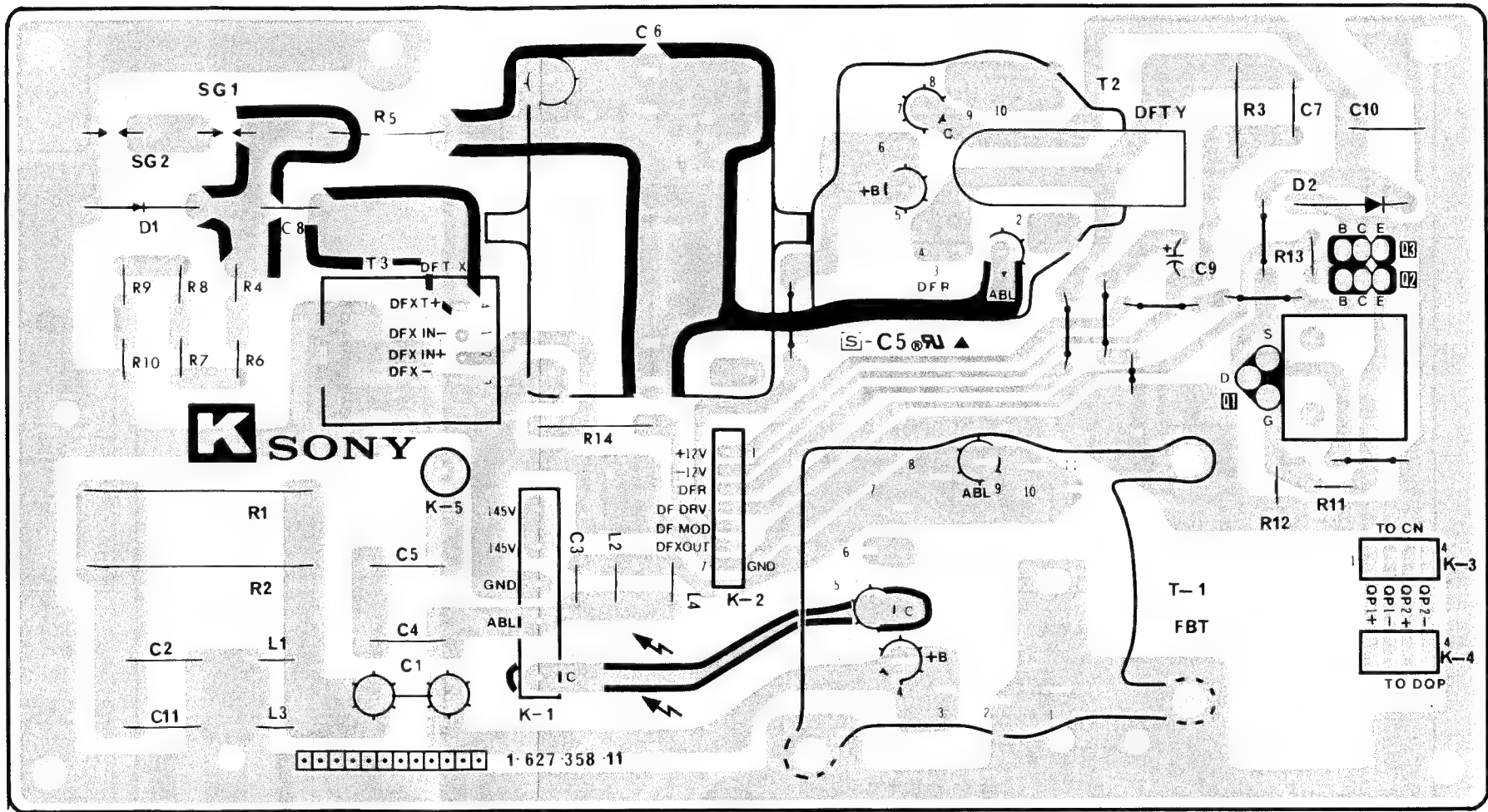
K

(FBT, DYNAMIC FOCUS)

—K BOARD— (DDM-2801C only, Serial No. up-to 10,090)



NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.



NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

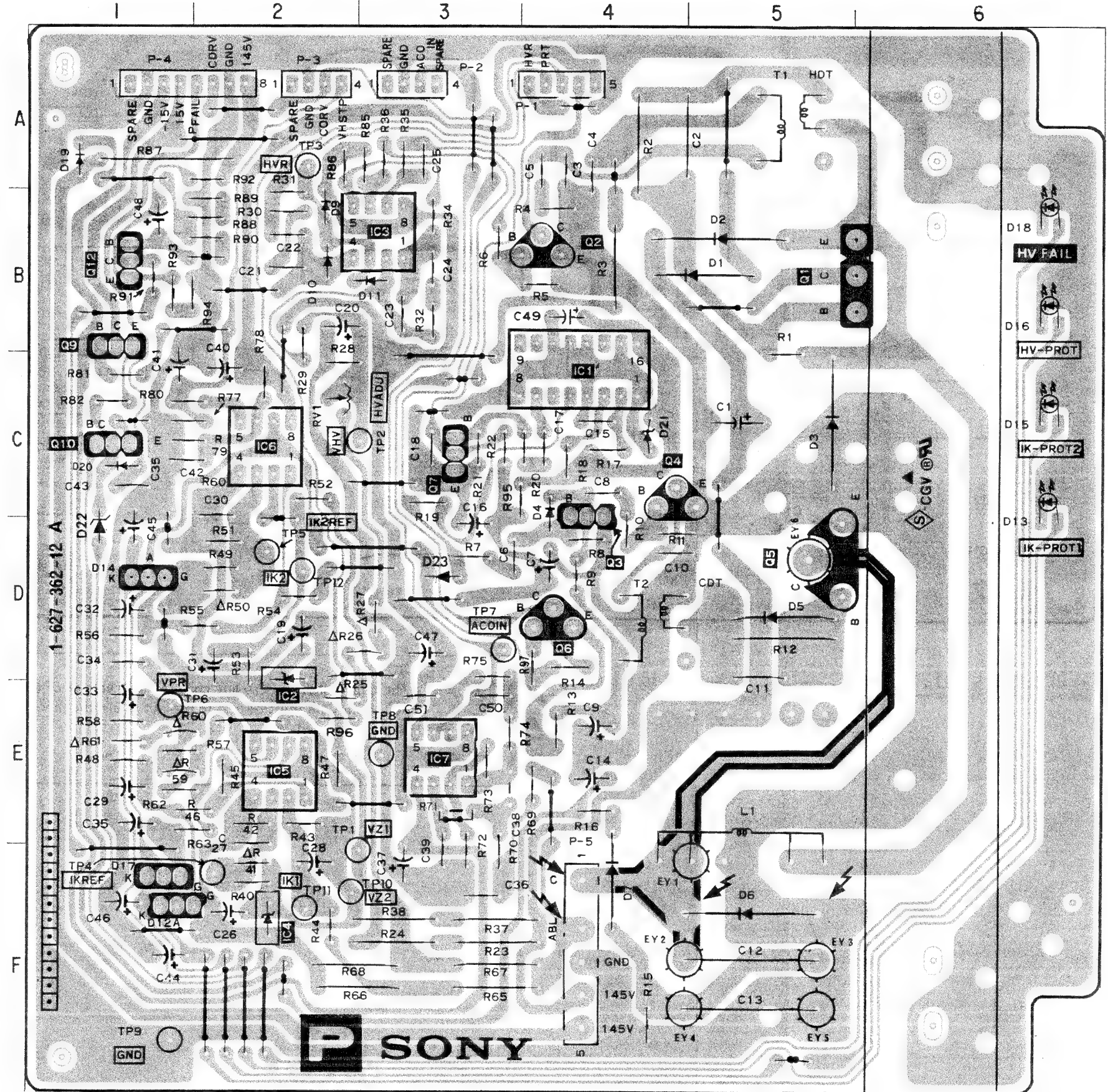
D

(HV REGULATOR, HV PROTECTOR)

—P BOARD— (DDM-2801C; Serial No. 10,021 and higher)
(DDM-2802C/2801C2/2802C2; Serial No. 10,001 and higher)

—P Board—

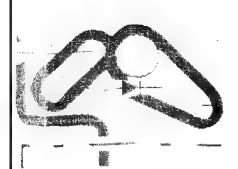
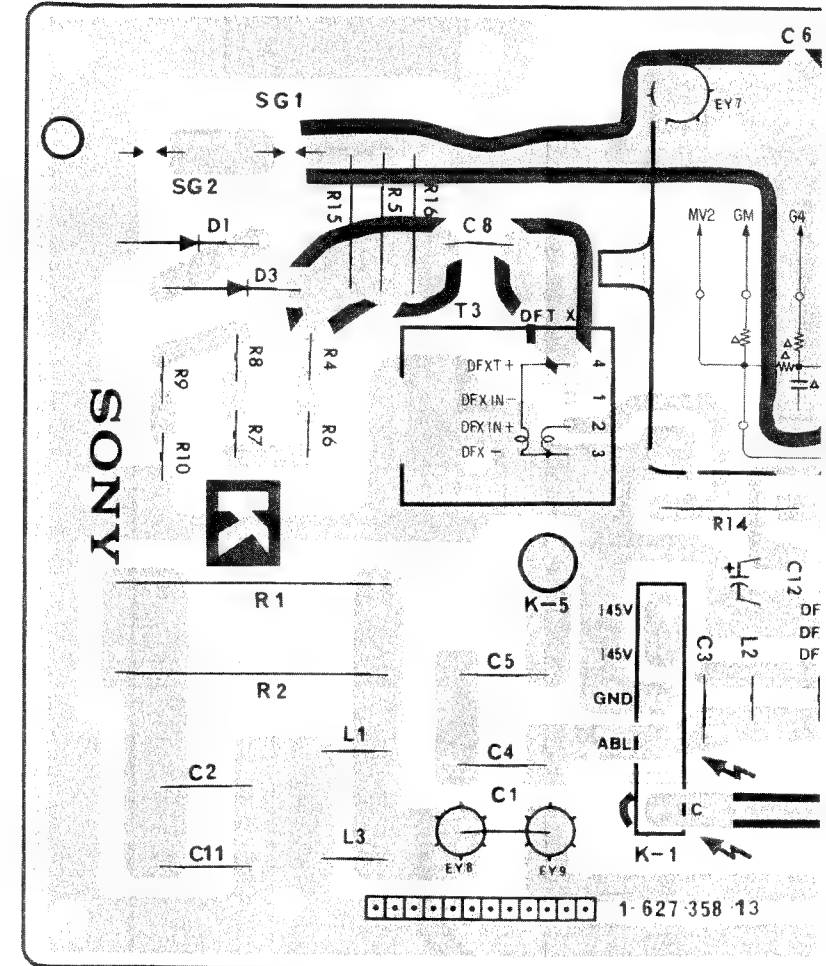
IC	
IC1	C4
IC2	E2
IC3	B3
IC4	F2
IC5	E2
IC6	C2
IC7	E3
TRANSISTOR	
Q1	B5
Q2	B4
Q3	D4
Q4	C4
Q5	D5
Q6	D4
Q7	C3
Q9	B1
Q10	C1
Q12	B1
DIODE	
D1	B5
D2	B5
D3	C5
D4	C4
D5	D5
D6	F5
D7	F4
D9	B2
D10	B2
D11	B3
D12	F1
D13	D6
D14	D1
D15	C6
D16	B6
D17	F1
D18	B6
D19	A1
D20	C1
D21	C4
D22	D1
D23	D3
VARIABLE RESISTOR	
RV1	C2
TESTPOINT	
TP1	E2
TP2	C3
TP3	A2
TP4	F2
TP5	D2
TP6	E1
TP7	D3
TP8	E3
TP9	F9
TP10	F2
TP11	F2
TP12	D2



K

(FBT, DYNAMIC FOCUS)

—K BOARD— (DDM-2801C; Serial No. 10,091 and higher) (DDM-2802C; Serial No. 10,001 and higher) (DDM-2801C2; Serial No. 10,091 and higher) (DDM-2802C2; Serial No. 10,001 and higher)



NOTE:
The circuit indicated as left contains high voltage 600 Vp-p. Care must be paid to prevent an electric shock inspection or repairing.

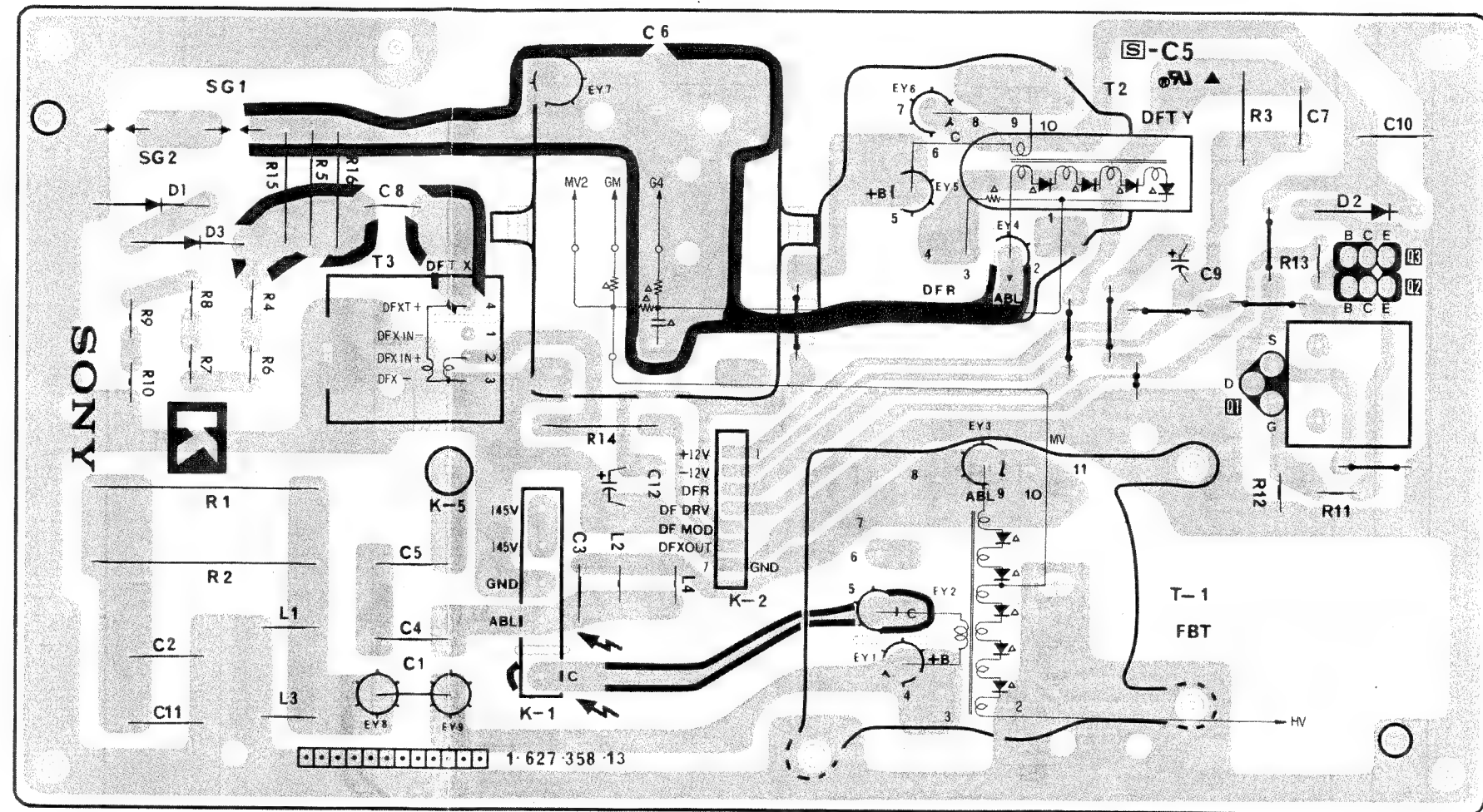
DDM-2801C/2802C
DDM-2801C2/2802C2

DDM-2801C/2802C
DDM-2801C2/2802C2

K

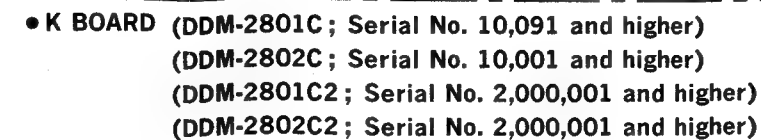
(FBT, DYNAMIC FOCUS)

—K BOARD— (DDM-2801C; Serial No. 10,091 and higher) (DDM-2801C2; Serial No. 2,000,001 and higher)
(DDM-2802C; Serial No. 10,001 and higher) (DDM-2802C2; Serial No. 2,000,001 and higher)



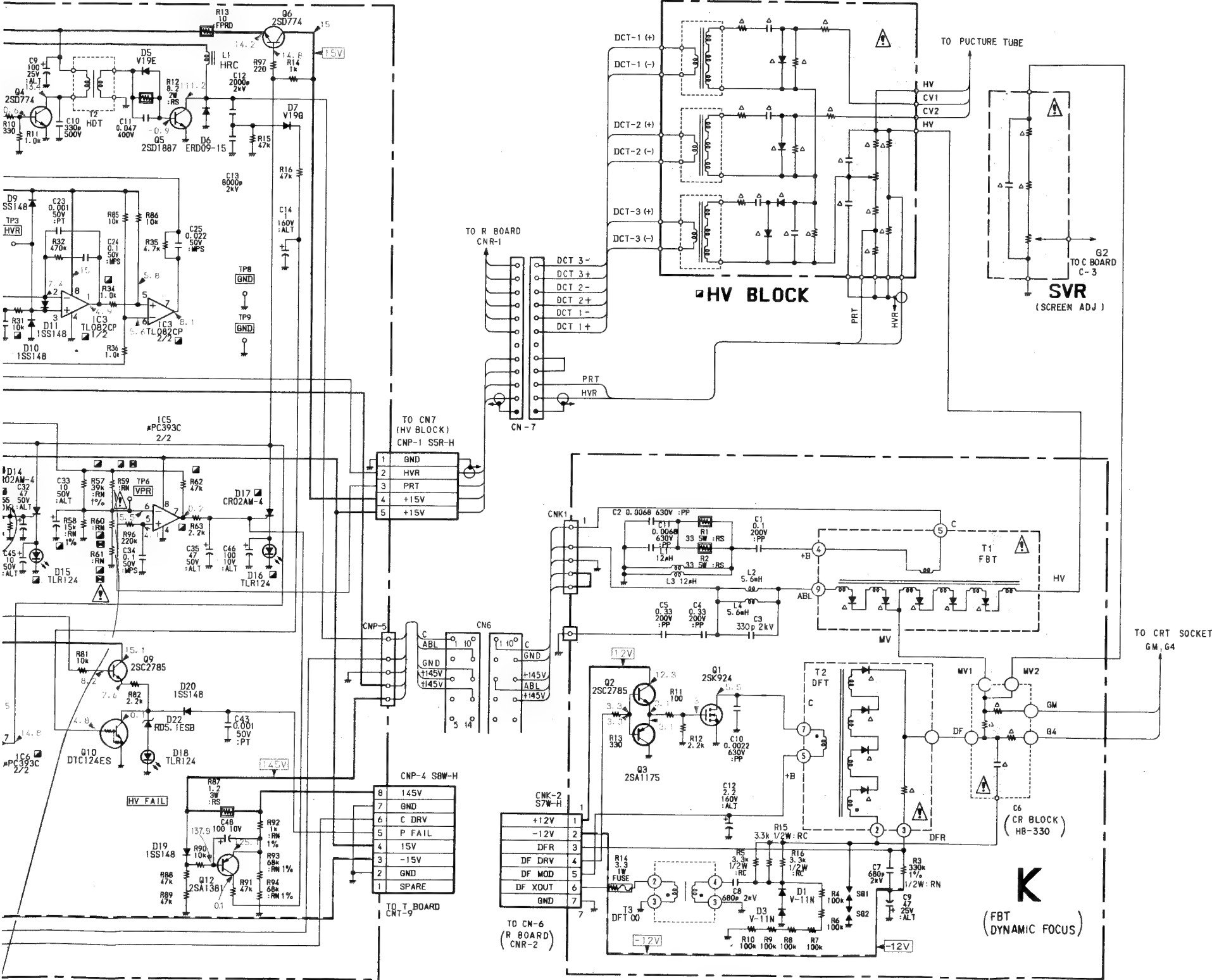
NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

R25, R26, R27 : See page 90.



7 8 9 10 11 12 13 14 15 16 17 18 19 20

R25, R26, R27 : See page 90.



• K BOARD (DDM-2801C ; Serial No. 10,091 and higher)
(DDM-2802C ; Serial No. 10,001 and higher)
(DDM-2801C2 ; Serial No. 2,000,001 and higher)
(DDM-2802C2 ; Serial No. 2,000,001 and higher)


—P Board—


IC1	MONO MULTI
2	32V ZENER DIODE
3	ERROR AMP
4	32V ZENER DIODE
5	HV PROTECT
6	IK PROTECT
7	IK AMP
Q1	HV CONTROL OUT
2	HV CONTROL DIRVE
3	HV PRE DRIVE
4	CONV DRIVE
5	CONV OUT
6	HV PROTECT OUT
7	HV SAW
9	VH STOP
10	HV STOP
12	CURRENT LIMIT
D1	HV DRIVE
2	HV OUT
3	HV OUT
4	SPEED UP
5	CONT DRIVE
6	DAMPER DIODE
7	HV RECT
9	PROTECT
10	PROTECT
11	PROTECT
12	IK PROT 1 OUT
13	IK PROT 1 LED
14	IK PROT 2 OUT
15	IK PROT 2 LED
16	HV PROT LED
17	HV PROT OUT
18	HV FAIL LED
19	BIAS
20	P FAIL
21	ZENER DIODE
22	BIAS
23	VH STOP


—K Board—

Q1	FOCUS OUT
2	BUFFER 1
3	BUFFER 2
D1	CLAMP 1
3	CLAMP 2

Note:

Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

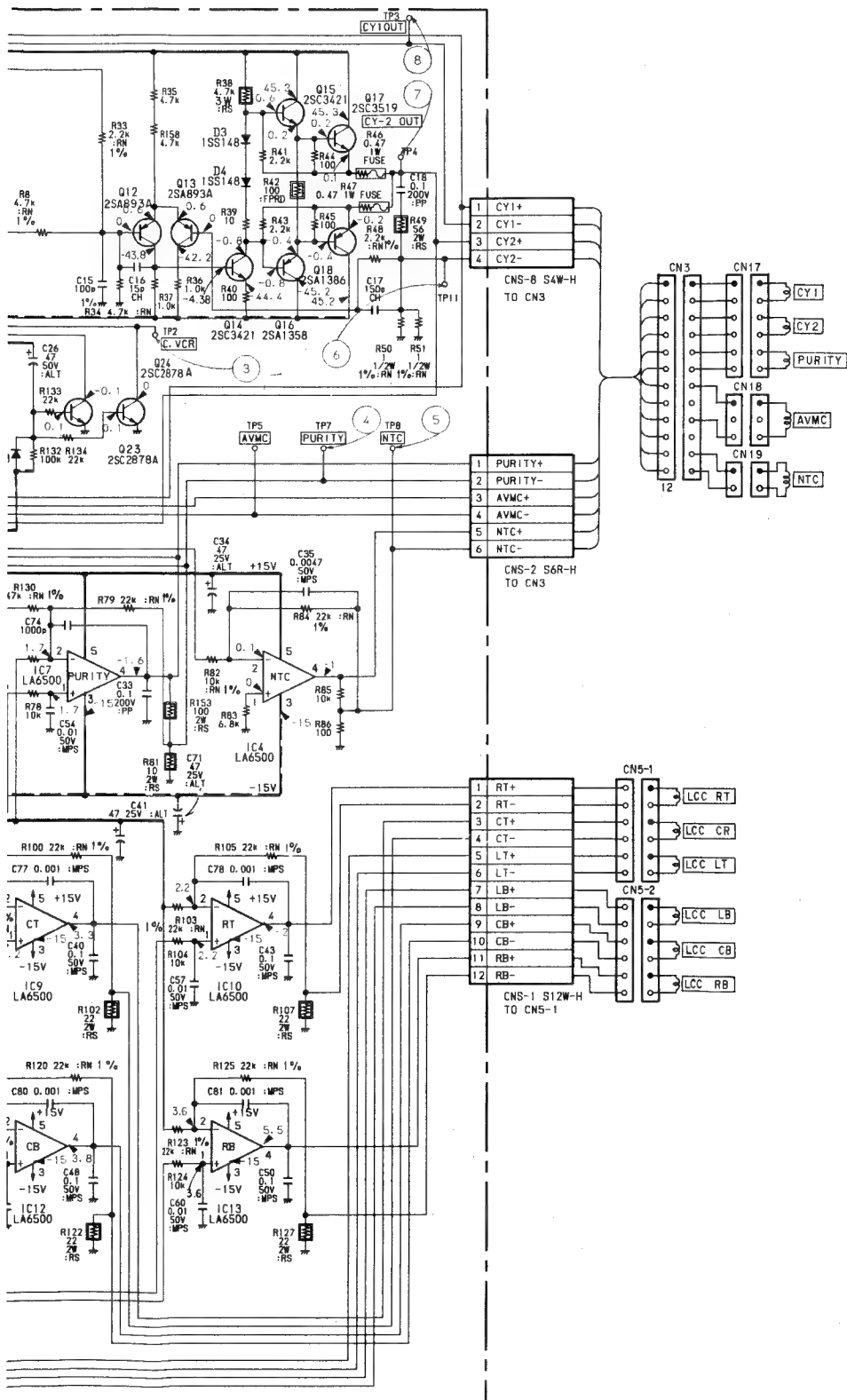
Note: Les composants identifiés par une trame et par une marque  sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

• The components identified by  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.



16

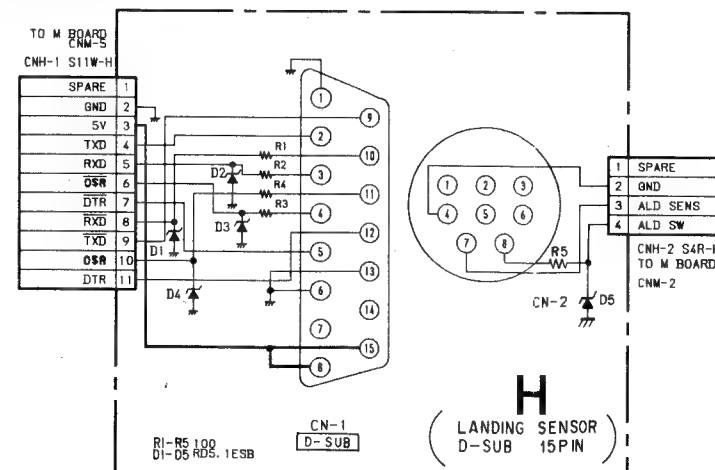
2,000,001 and higher)



- **H BOARD**

(DDM-2801C; Serial No. 10,031 and higher)

(DDM-2802C/2801C2/2802C2; Serial No. 10,001 and higher)



—S Board—

IC2	5V REG
3	DA CONV.
4	NTC OUT
6	AVMC OUT
7	PURITY OUT
8	LCC OUT 1
9	LCC OUT 2
10	LCC OUT 3
11	LCC OUT 4
12	LCC OUT 5
13	LCC OUT 6
14	FAIL COMP

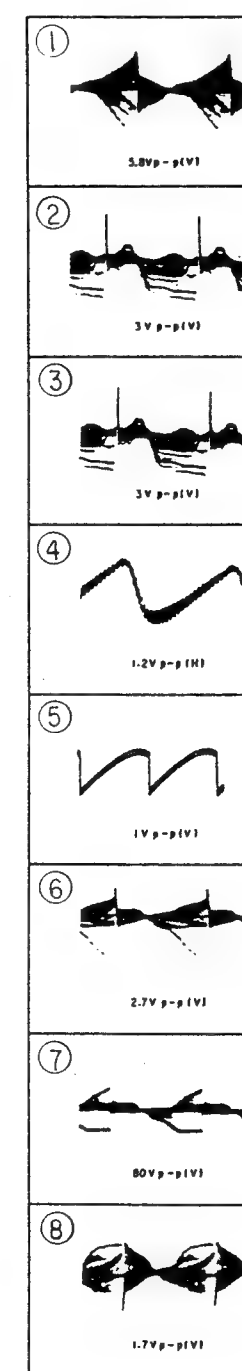
Q3	CY PREAMP 1
4	CY PREAMP 2
5	CY DRIVE 1
6	CY DRIVE 2
7	CY DRIVE 3
8	CY OUT 1
9	CY OUT 2
12	CY PREAMP 3
13	CY PREAMP 4
14	CY DRIVE 4
15	CY DRIVE 5
16	CY DRIVE 6
17	CY OUT 3
18	CY OUT 4
21	CY FAIL 1
22	CY FAIL 2
23	CY MUTING 1
24	CY MUTING 2
25	FAN FAIL 1
26	FAN FAIL 2
27	FAN FAIL 3

D1	BIAS 1
2	BIAS 2
3	BIAS 3
4	BIAS 4
5	RECT 1
6	CLAMP 1
7	SW 1
8	RECT 2
9	CLAMP 2
10	SW 2
11	CY FAIL
12	CY MUTING

—H Board—

D1	SLICE
2	SLICE
3	SLICE
4	SLICE
5	SLICE

—S Board—



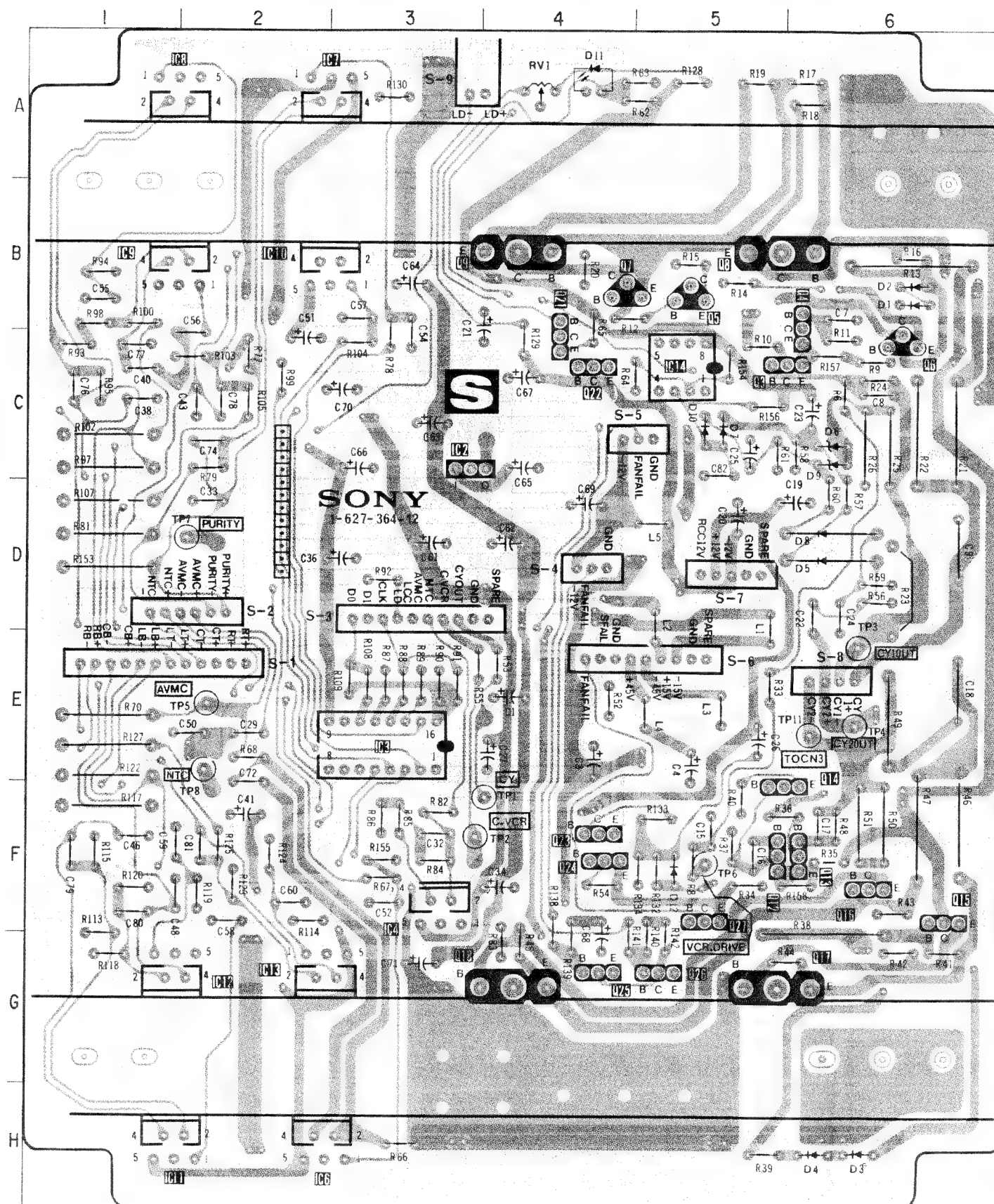
S

(V.CONVERGENCE, V.CENT, LANDING CORRECTION, PURITY)

DDM-2801C/2802C
DDM-2801C2/2802C2DDM-2801C/2802C
DDM-2801C2/2802C2

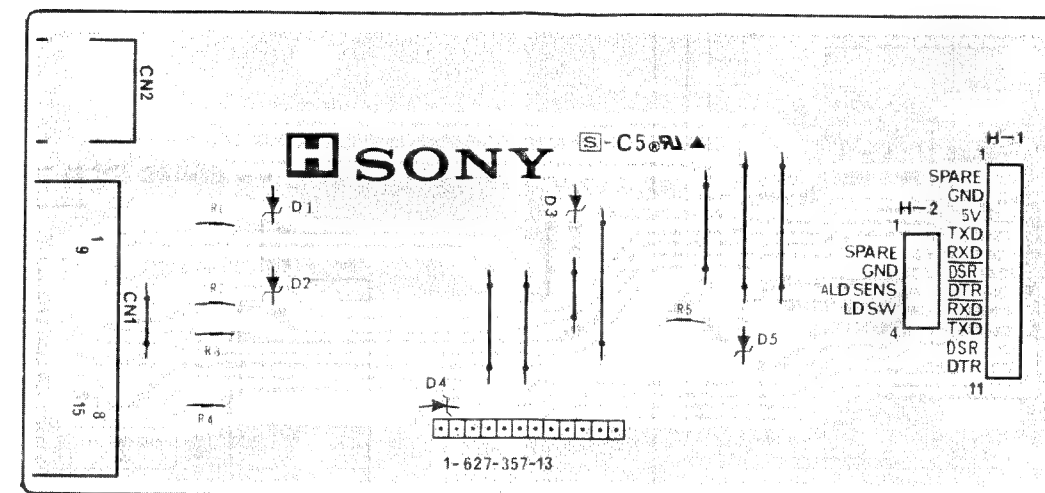
—S Board—

IC	
IC2	C-3
IC3	F-3
IC4	F-3
IC6	H-2
IC7	A-2
IC8	A-11
IC9	B-11
IC10	B-2
IC11	H-11
IC12	G-11
IC13	G-2
IC14	C-5
TRANSISTOR	
Q3	C-5
Q4	C-6
Q5	B-5
Q6	C-6
Q7	B-4
Q8	B-5
Q9	B-4
Q12	F-5
Q13	F-6
Q14	E-5
Q15	F-6
Q16	F-6
Q17	F-6
Q18	G-4
Q21	C-4
Q22	C-4
Q23	F-4
Q24	F-4
Q25	G-4
Q26	G-5
Q27	F-5
DIODE	
D1	B-6
D2	B-6
D3	H-6
D4	H-6
D5	D-6
D6	C-6
D7	C-5
D8	D-6
D9	C-6
D10	C-5
D11	A-4
D12	F-5
VARIABLE RESISTOR	
RV1	A-4
TESTPOINT	
TP1	F-4
TP2	F-3
TP3	F-5
TP4	E-6
TP5	E-2
TP7	D-2
TP8	E-2
TP11	E-6

—S BOARD— (DDM-2801C; Serial No. 10,091 and higher) (DDM-2801C2/2802C2; Serial No. 10,001 and higher)
(DDM-2802C; Serial No. 10,001 and higher)

H

(D-SUB 15 PIN, LANDING SENSOR)

—H BOARD— (DDM-2801C; Serial No. 10,031 and higher)
(DDM-2802C/2801C2/2802C2; Serial No. 10,001 and higher)

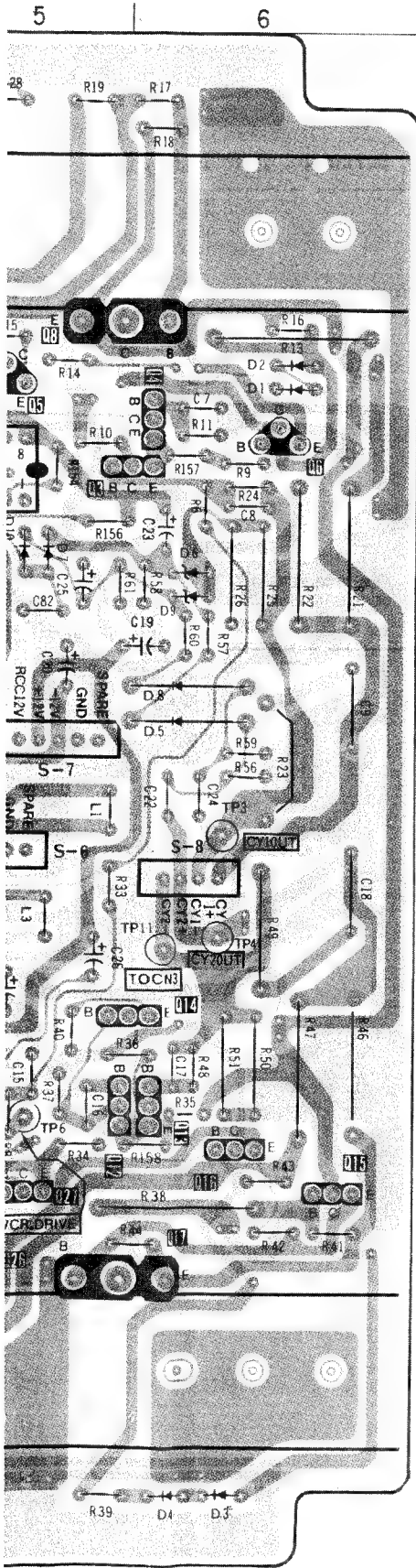
• : Pattern from the side with enables seeing
 • : Pattern of the rear side.

H

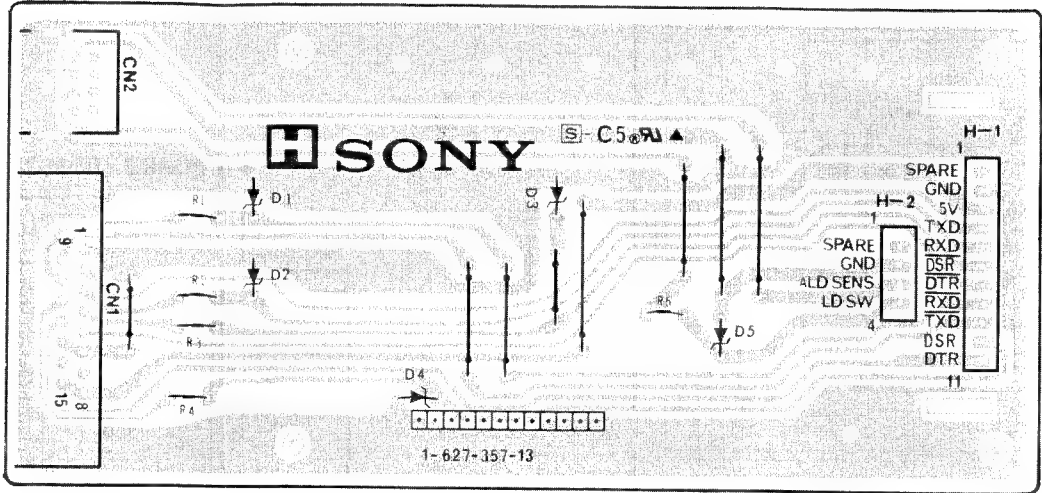
(D-SUB 15 PIN, LANDING SENSOR)

2C2 ; Serial No. 10,001 and higher)

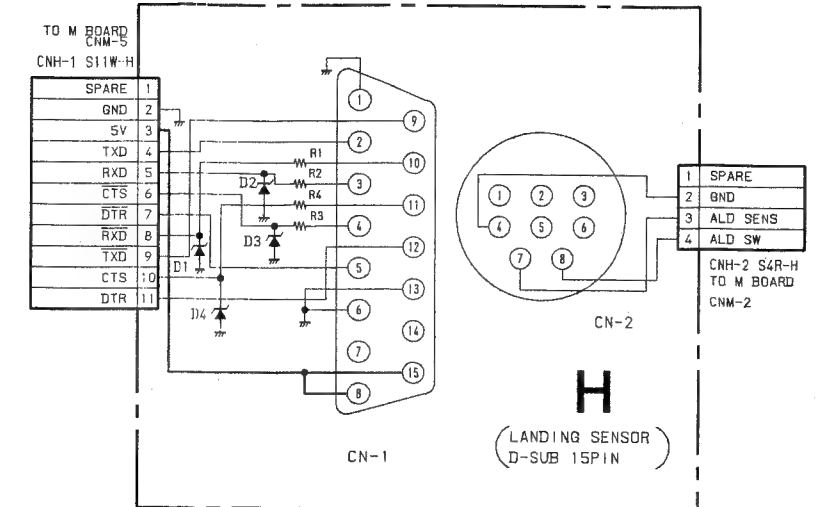
—H BOARD— (DDM-2801C ; Serial No. 10,031 and higher)
(DDM-2802C/2801C2/2802C2 ; Serial No. 10,001 and higher)

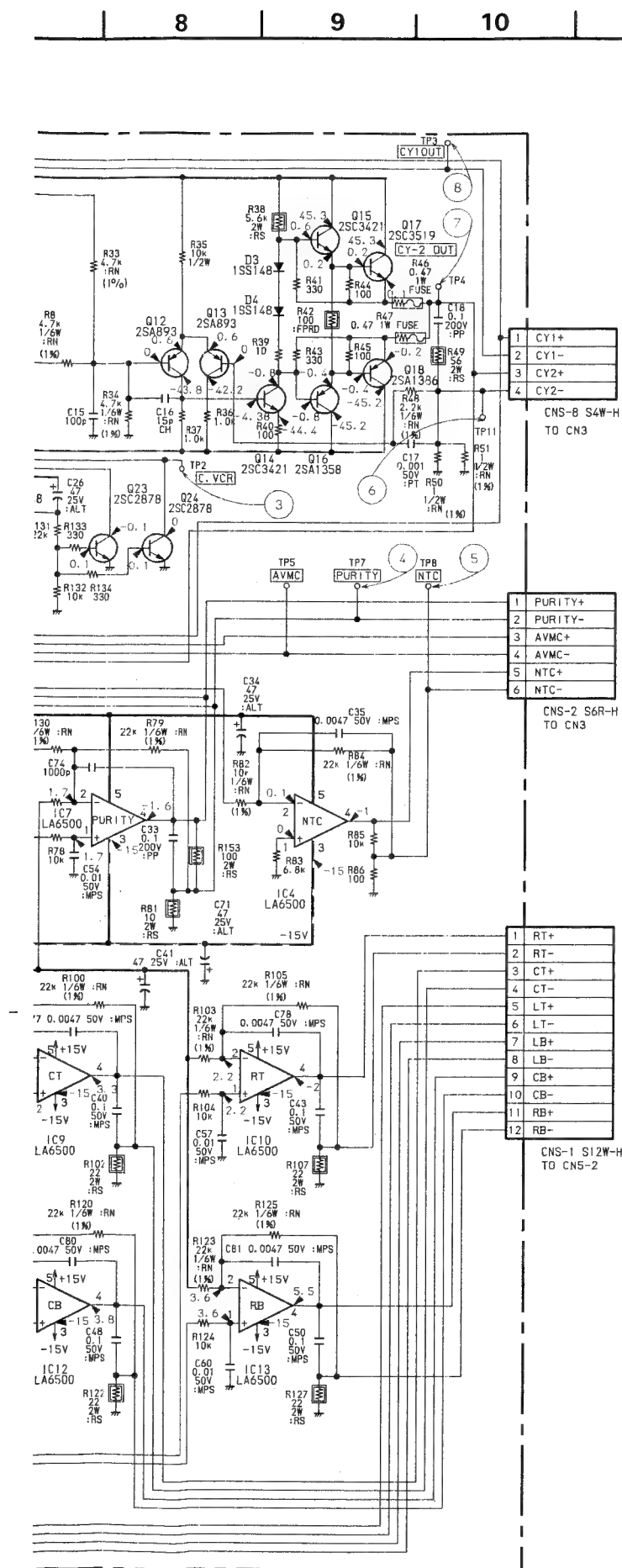


- : Pattern from the side witch enables seeing
- : Pattern of the rear side.

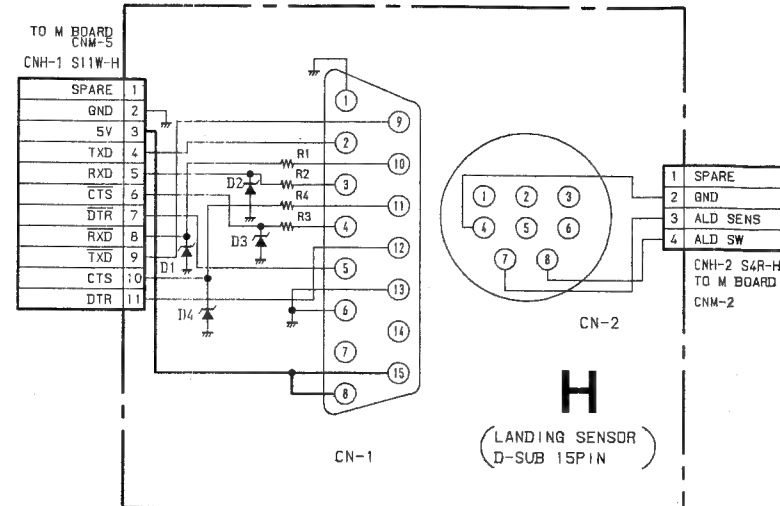


● H BOARD (DDM-2801C only, Serial No. up-to 10,030)





● H BOARD (DDM-2801C only, Serial No. up-to 10,030)



— S Board—

IC2	5V REG
3	DA CONV.
4	NTC OUT
6	AVMC OUT
7	PURITY OUT
8	LCC OUT 1
9	LCC OUT 2
10	LCC OUT 3
11	LCC OUT 4
12	LCC OUT 5
13	LCC OUT 6
14	FAIL COMP

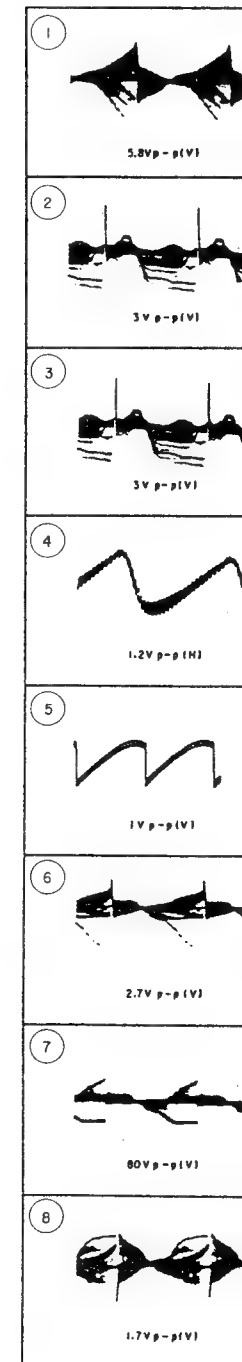
Q3	CY PREAMP 1
4	CY PREAMP 2
5	CY DRIVE 1
6	CY DRIVE 2
7	CY DRIVE 3
8	CY OUT 1
9	CY OUT 2
12	CY PREAMP 3
13	CY PREAMP 4
14	CY DRIVE 4
15	CY DRIVE 5
16	CY DRIVE 6
17	CY OUT 3
18	CY OUT 4
21	CY FAIL 1
22	CY FAIL 2
23	CY MUTING 1
24	CY MUTING 2
25	FAN FAIL 1
26	FAN FAIL 2
27	FAN FAIL 3

D1	BIAS 1
2	BIAS 2
3	BIAS 3
4	BIAS 4
5	RECT 1
6	CLAMP 1
7	SW 1
8	RECT 2
9	CLAMP 2
10	SW 2
11	CY FAIL
12	CY MUTING

—H Board—

D1	SLICE
2	SLICE
3	SLICE
4	SLICE

—S Board—

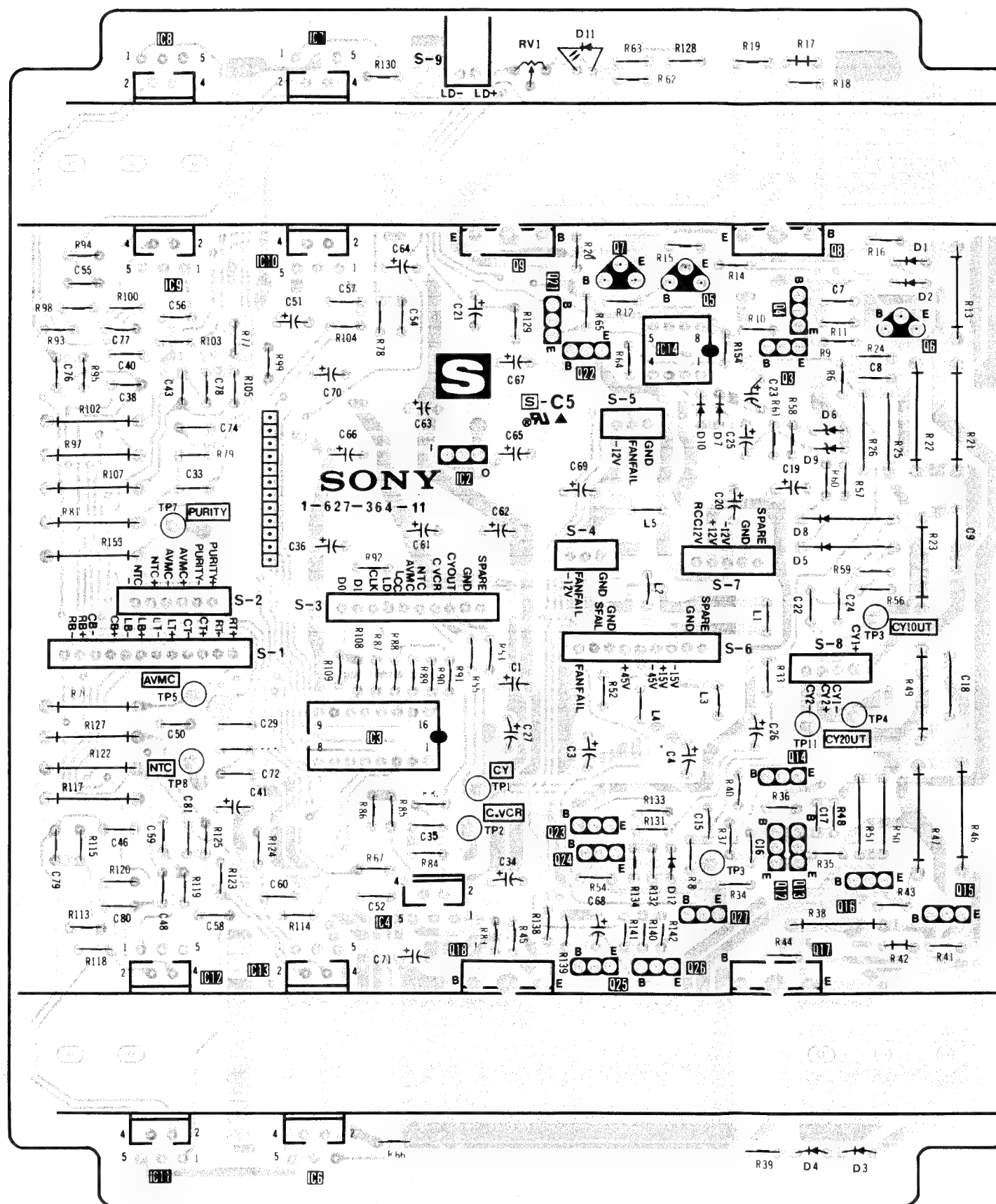


S

(V.CONVERGENCE, V.CENT, LANDING CORRECTION, PURITY)

—S BOARD— (DDM-2801C only, Serial No. up-to 10,090)

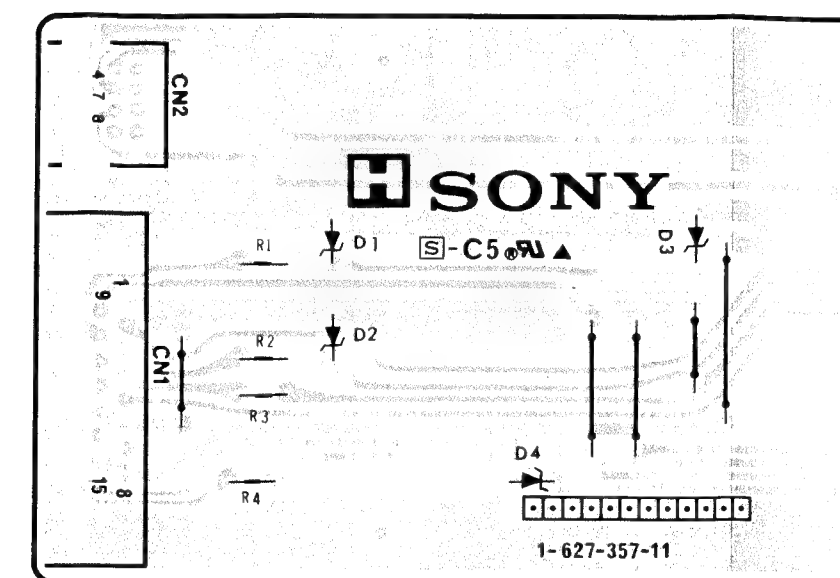
IC	Q	D	RV	TP
8 7		11	I	
9,10	9 8	1		
	7,5	2		
	21 4			
	22 3			
2		10,7		
		6		
		9		
		8		
		5		
			7	
				3
				5
3				4
				11
				8
				1
				2
	23			
	24,12,13			
	16	12		
4	27 15			
12,13	18,25,26,17			
11 6				
		4,3		



S

H

—H BOARD— (DDM-2801C only, Serial No. up-to 10,030)

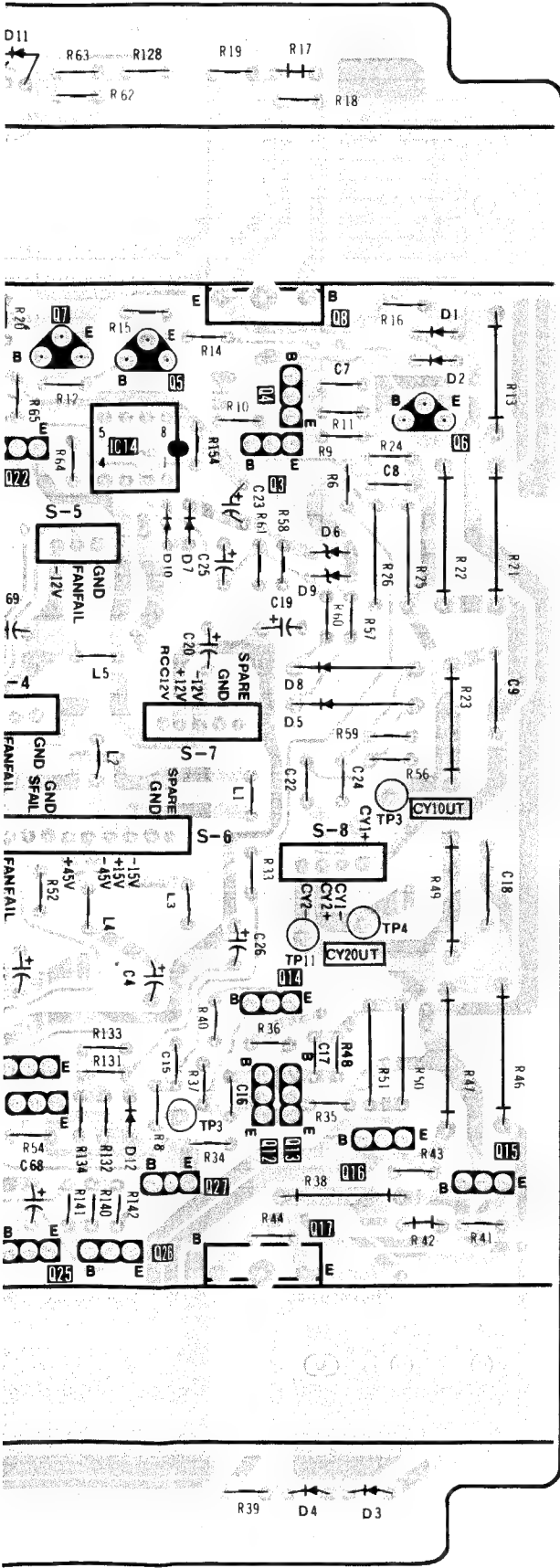


- Pattern from the side witch enables seeing
- Pattern of the rear side.

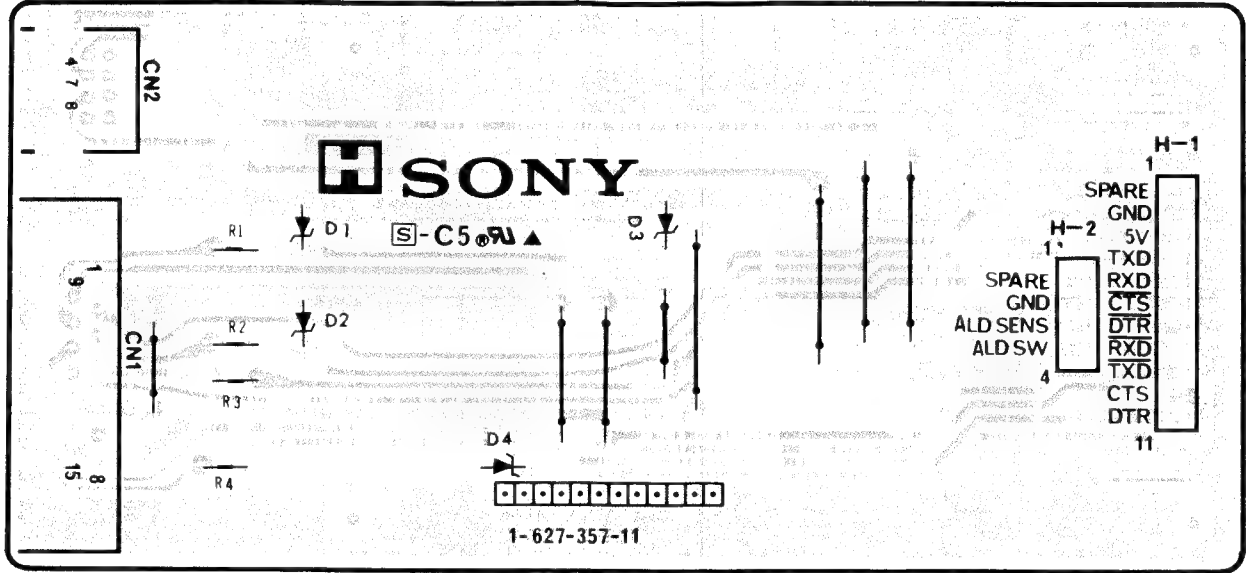
S

H

(D-SUB 15 PIN, LANDING SENSOR)

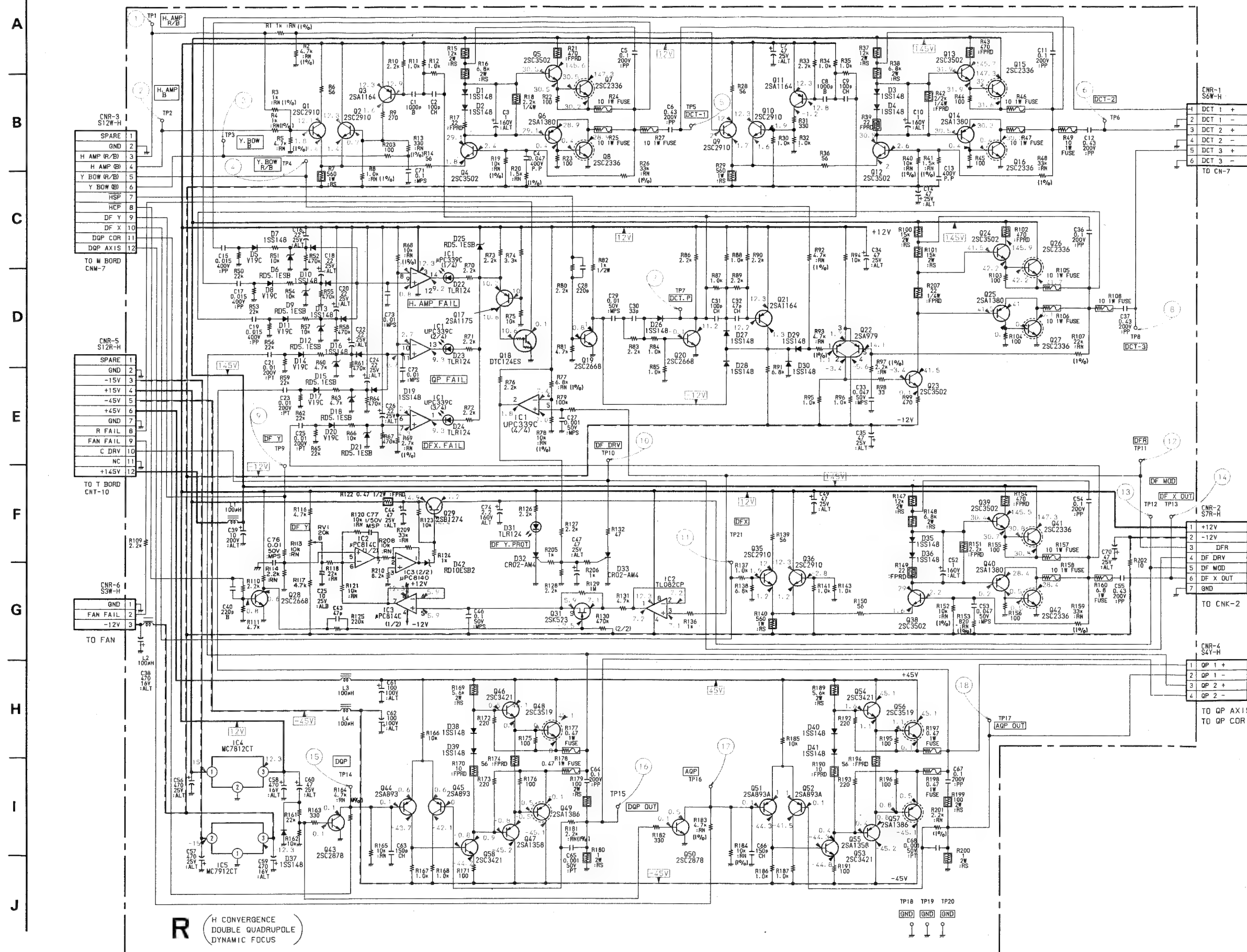


—H BOARD— (DDM-2801C only, Serial No. up to 10,030)



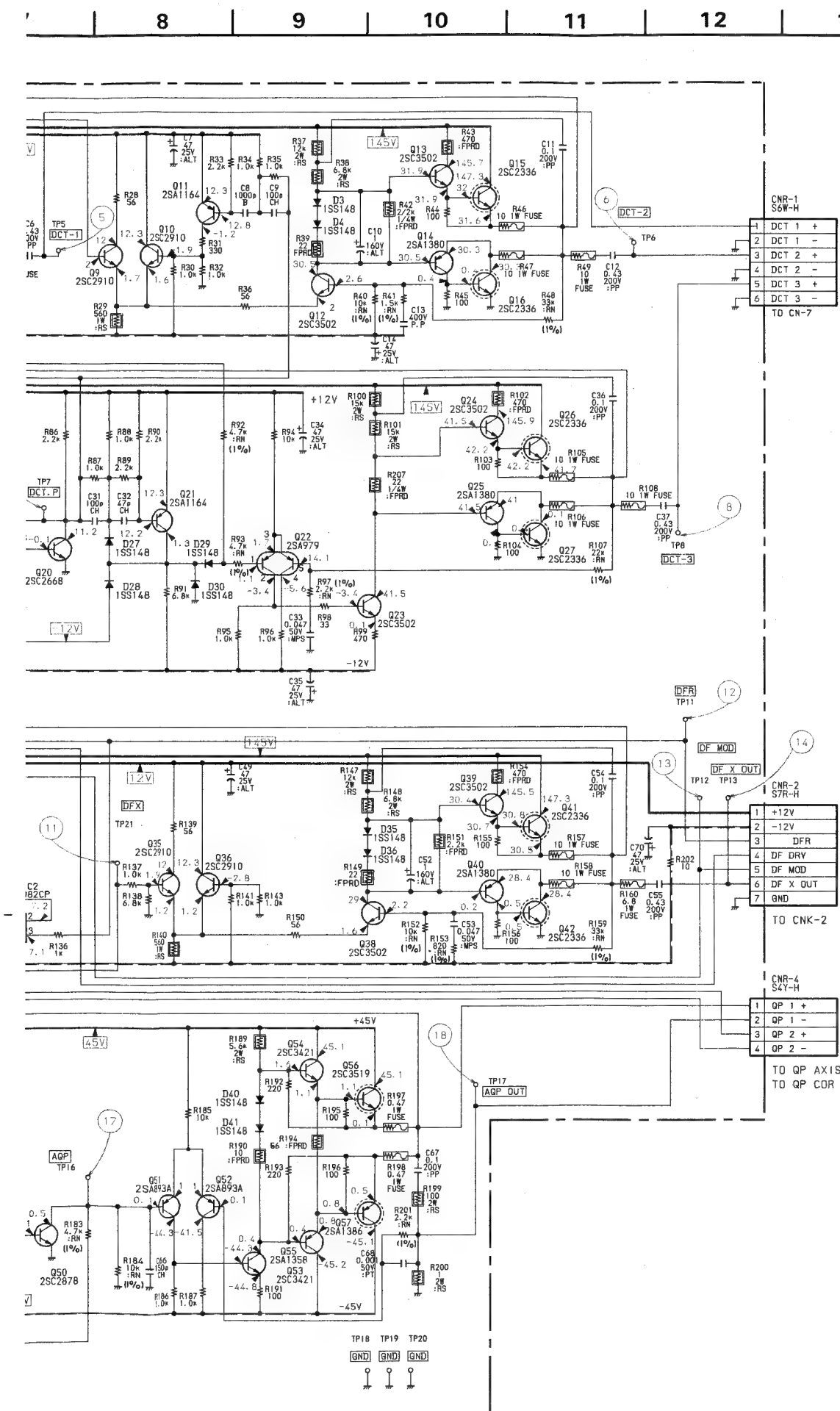
• : Pattern from the side witch enables seeing
• : Pattern of the rear side.

• R BOARD (DDM-2801C only, Serial No. up-to 10,090)



-R Board-

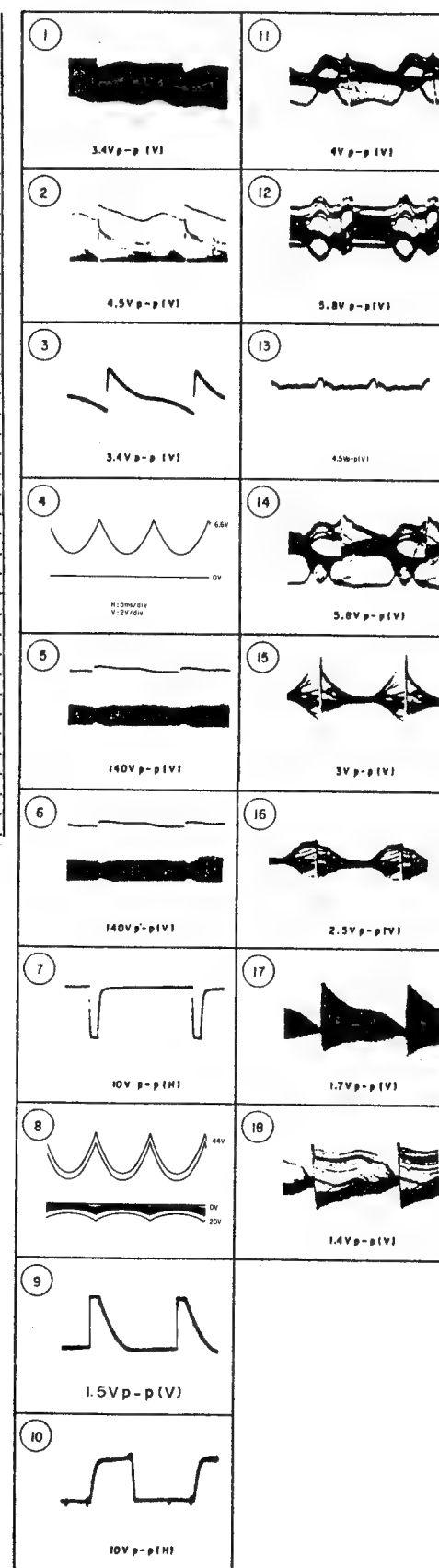
IC1	FAIL COMP
2	DFY MODU
3	DFY BUFF
4	12V REG
5	-12V REG
Q1	DCT PREAMP 1
2	DCT PREAMP 2
3	DCT PULSE 1
4	DCT DRIVE 1
5	DCT DRIVE 2
6	DCT DRIVE 3
7	DCT OUT 1
8	DCT OUT 2
9	DCT PREAMP 3
10	DCT PREAMP 4
11	DCT PULSE 2
12	DCT DRIVE 4
13	DCT DRIVE 5
14	DCT DRIVE 6
15	DCT OUT 3
16	DCT OUT 4
17	R FAIL 1
18	R FAIL 2
19	DCT PULSE 3
20	DCT PULSE 4
21	DCT PULSE 5
22	DCT PREAMP 4
23	DCT DRIVE 7
24	DCT DRIVE 8
25	DCT DRIVE 9
26	DCT OUT 5
27	DCT OUT 6
28	H. CENTER PULSE
29	DFY OUT
31	SAMPLE HOLD
35	DFX PREAMP 1
36	DFX PREAMP 2
38	DFX DRIVE 1
39	DFX DRIVE 2
40	DFX DRIVE 3
41	DFX OUT 1
42	DFX OUT 2
43	DQP MUTING
44	DQP PREAMP 1
45	DQP PREAMP 2
46	DQP DRIVE 1
47	DQP DRIVE 2
48	DQP OUT 1
49	DQP OUT 2
50	DQP MUTING
51	AQP PREAMP 1
52	AQP PREAMP 2
53	AQP DRIVE 1
54	AQP DRIVE 2
55	AQP DRIVE 3
56	AQP OUT 1
57	AQP OUT 2
58	DQP DRIVE 3



—R Board—

1C1	FAIL COMP
2	DFY MODU
3	DFY BUFF
4	12V REG
5	-12V REG
Q1	DCT PREAMP 1
2	DCT PREAMP 2
3	DCT PULSE 1
4	DCT DRIVE 1
5	DCT DRIVE 2
6	DCT DRIVE 3
7	DCT OUT 1
8	DCT OUT 2
9	DCT PREAMP 3
10	DCT PREAMP 4
11	DCT PULSE 2
12	DCT DRIVE 4
13	DCT DRIVE 5
14	DCT DRIVE 6
15	DCT OUT 3
16	DCT OUT 4
17	R FAIL 1
18	R FAIL 2
19	DCT PULSE 3
20	DCT PULSE 4
21	DCT PULSE 5
22	DCT PREAMP 4
23	DCT DRIVE 7
24	DCT DRIVE 8
25	DCT DRIVE 9
26	DCT OUT 5
27	DCT OUT 6
28	H.CENTER PULSE
29	DFY OUT
31	SAMPLE HOLD
35	DFX PREAMP 1
36	DFX PREAMP 2
38	DFX DRIVE 1
39	DFX DRIVE 2
40	DFX DRIVE 3
41	DFX OUT 1
42	DFX OUT 2
43	DQP MUTING
44	DQP PREAMP 1
45	DQP PREAMP 2
46	DQP DRIVE 1
47	DQP DRIVE 2
48	DQP OUT 1
49	DQP OUT 2
50	DQP MUTING
51	AQP PREAMP 1
52	AQP PREAMP 2
53	AQP DRIVE 1
54	AQP DRIVE 2
55	AQP DRIVE 3
56	AQP OUT 1
57	AQP OUT 2
58	DQP DRIVE 3

— R Board —



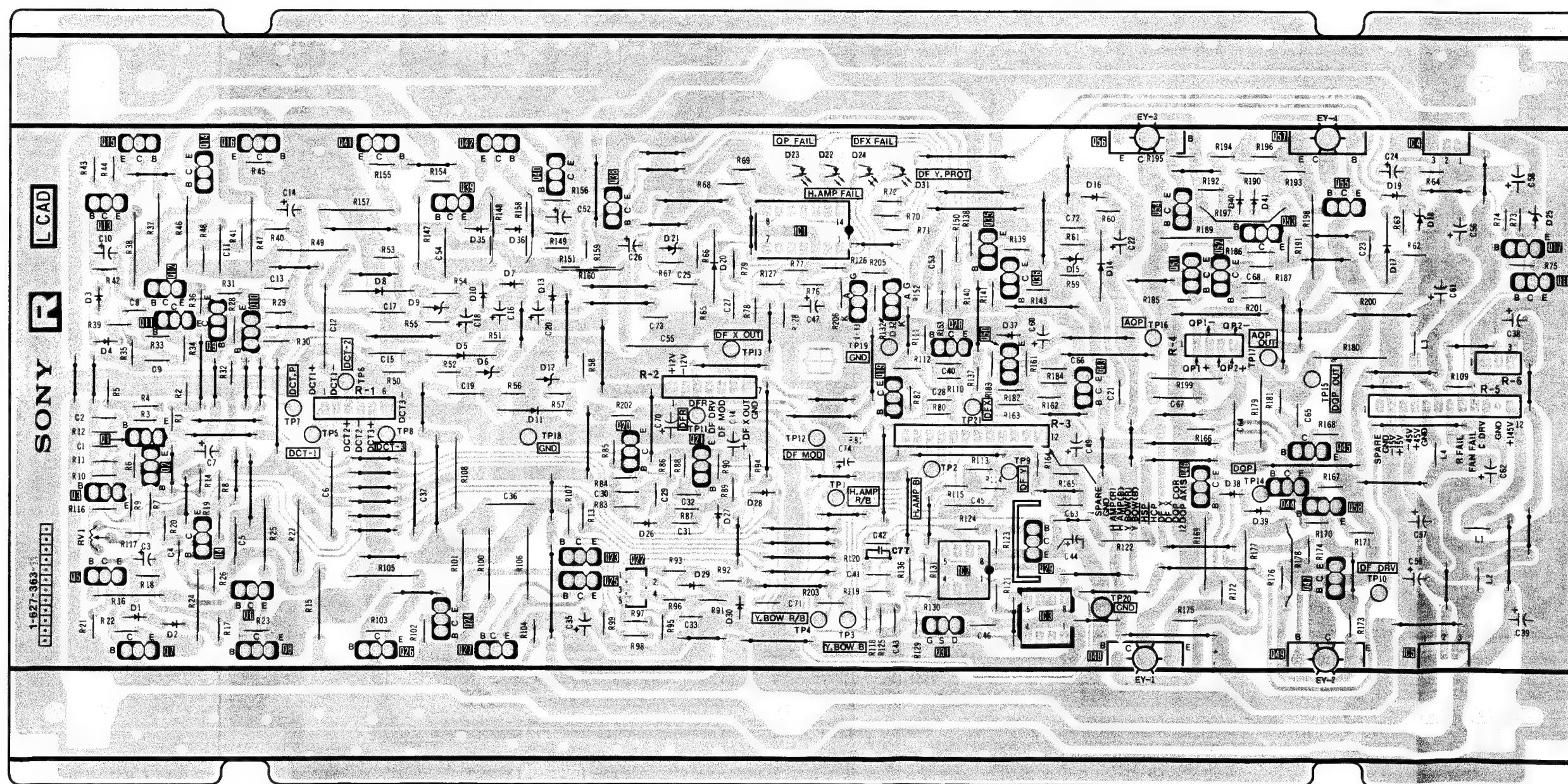
(H.CONVERGENCE, DUBLE QUADRUPOLE, DYNAMIC FOCUS)

DDM-2801C/2802C
DDM-2801C2/2802C2

DDM-2801C/2802C
DDM-2801C2/2802C2

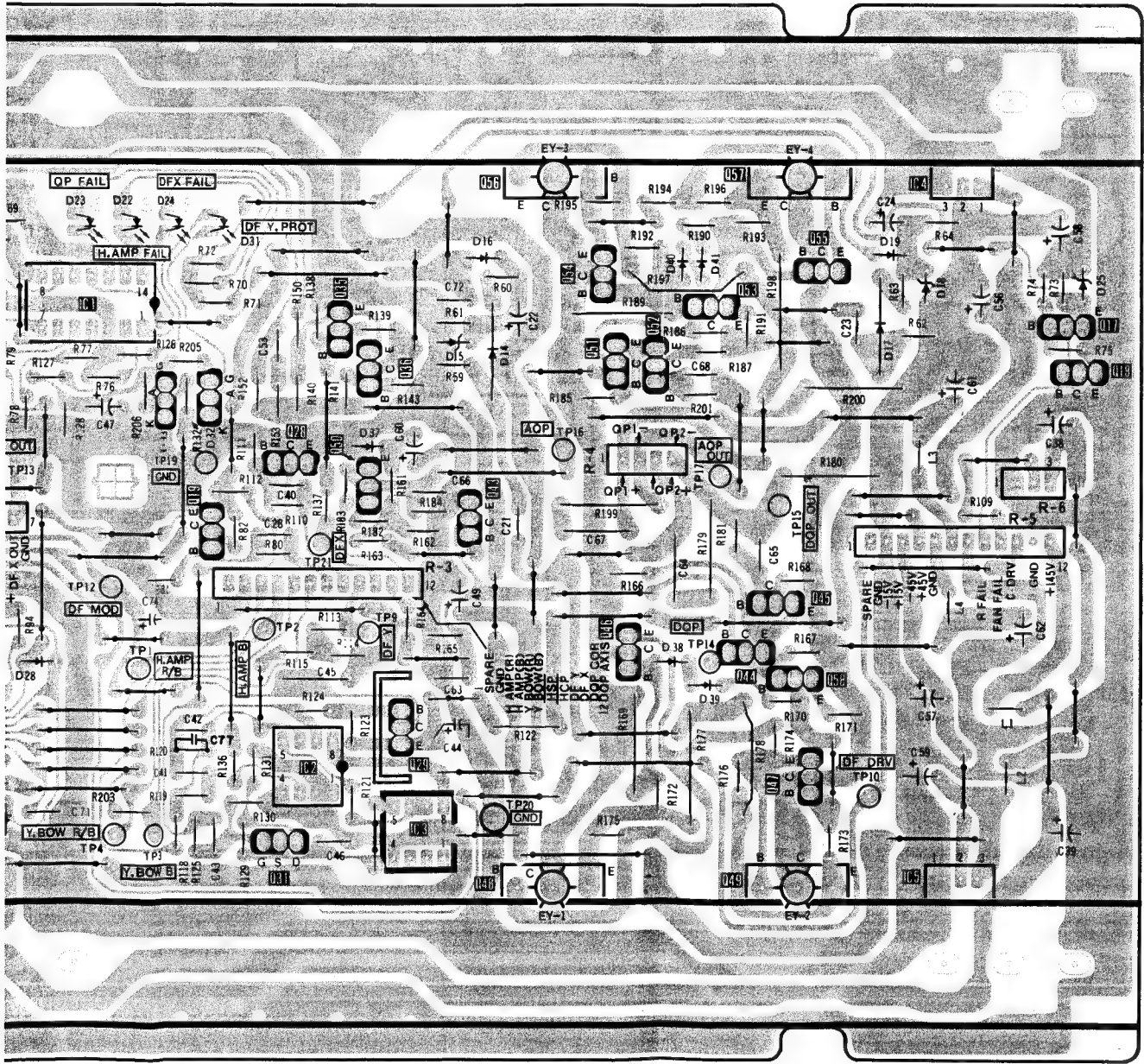
R

—R BOARD— (DDM-2801C only; Serial No. up-to 10,090)

[illegible]

R

1		2		3		4	
				56		5	
		28		54		57	
		35		51		55	
		36		52		17	
19		50		43		45	
		29		46		58	
		31		44		47	
23		22		40		19	
8		33		41		18	
		32		38		17	
		37		39		25	
		15					
		16					
		14					
12		1		17		15	
4		3		14		10	
		19					
		2					
		21					
		9					
				20			
				16			



R

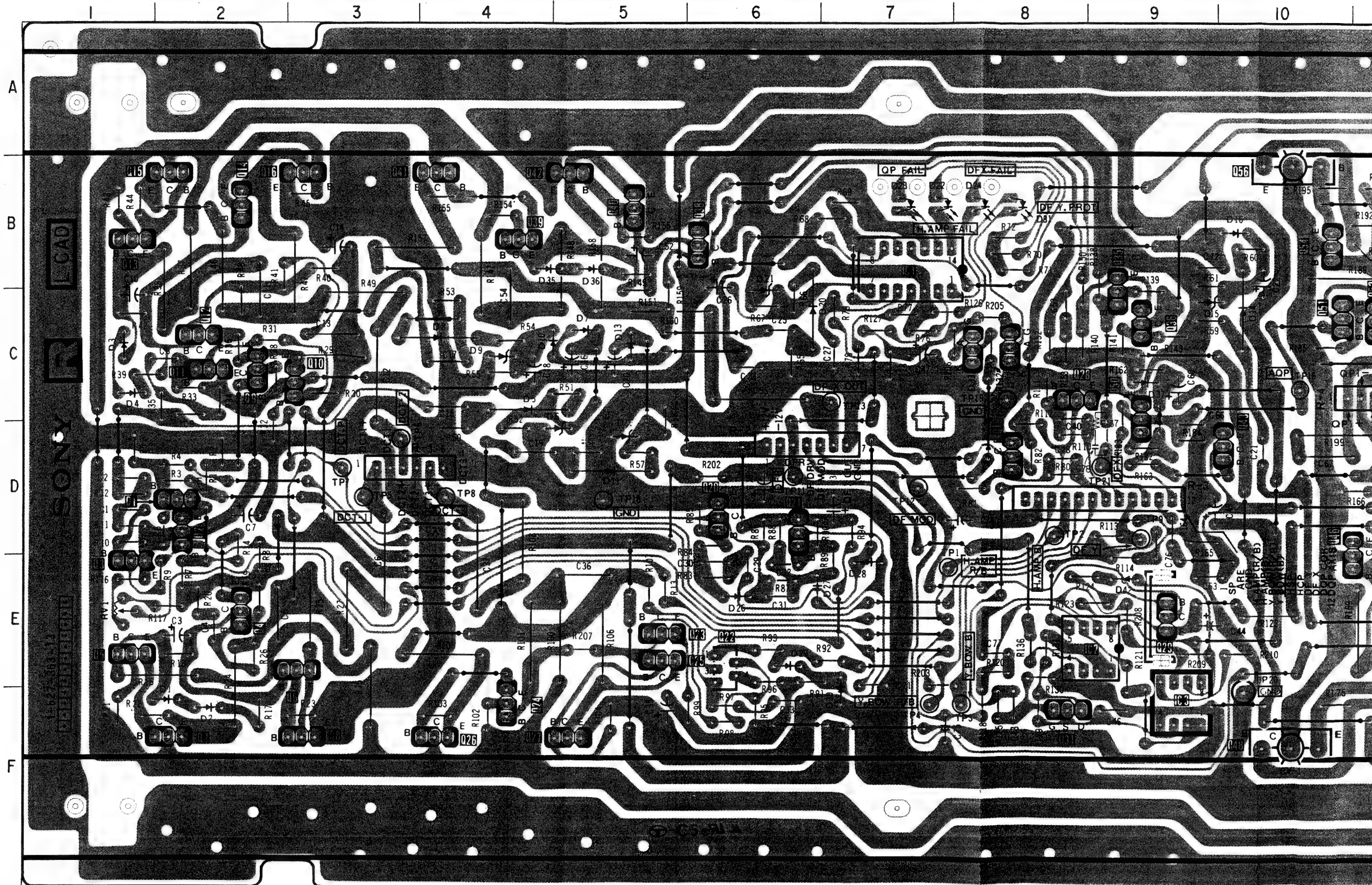
(H.CONVERGENCE, DUBLE QUADRUPOLE, DYNAMIC FOCUS)

—R BOARD— (DDM-2801C; Serial No. 10,091—2,000,043)

R

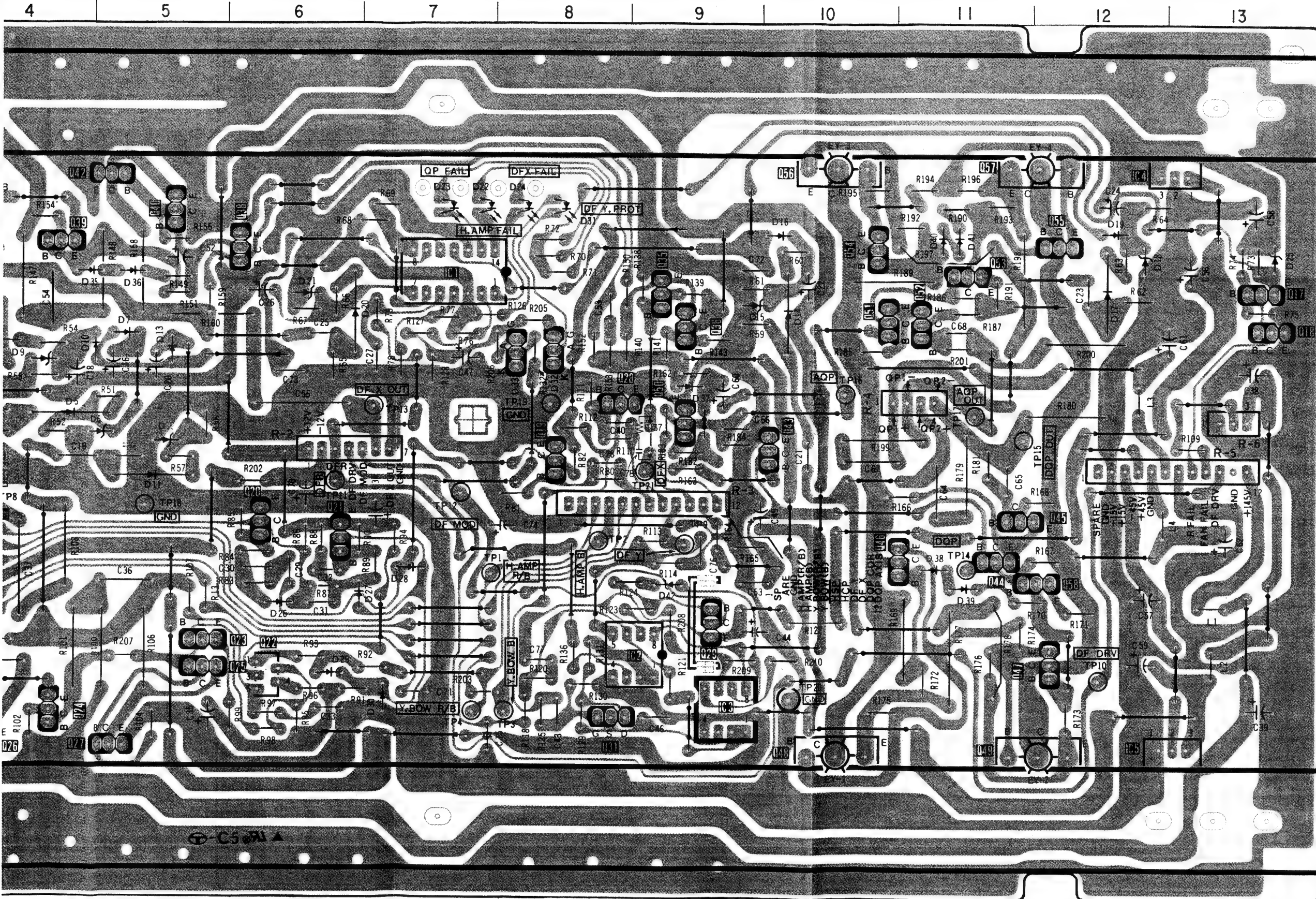
—R Board—

IC		D20	C-6
IC1	B-7	D21	B-6
IC2	E-8	D22	B-7
IC3	F-9	D23	B-7
IC4	B-12	D24	B-8
IC5	F-12	D25	B-13
TRANSISTOR		D26	E-6
		D27	E-6
		D28	E-7
		D29	E-6
		D30	F-7
		D31	B-8
		D32	C-8
		D33	C-8
		D35	B-4
		D36	B-5
		D37	C-9
		D38	E-11
		D39	E-11
		D40	B-11
		D41	B-11
		D42	E-9
		VARIABLE RESISTOR	
		RV1	E-1
TESTPOINT		TESTPOINT	
		TP1	E-7
		TP2	D-8
		TP3	F-8
		TP4	F-7
		TP5	D-3
		TP6	D-3
		TP7	D-3
		TP8	D-4
		TP9	D-9
		TP10	E-12
		TP11	D-6
		TP12	D-7
		TP13	C-7
		TP14	E-11
		TP15	D-11
		TP16	C-10
		TP17	C-11
		TP18	D-5
		TP19	C-9
		TP20	E-10
		TP21	D-9
DIODE			
D1	F-2		
D2	F-2		
D3	C-1		
D4	C-1		
D5	C-4		
D6	D-4		
D7	C-5		
D8	C-4		
D9	C-4		
D10	C-4		
D11	D-5		
D12	D-5		
D13	C-5		
D14	C-10		
D15	C-9		
D16	B-10		
D17	C-12		
D18	B-12		
D19	B-12		

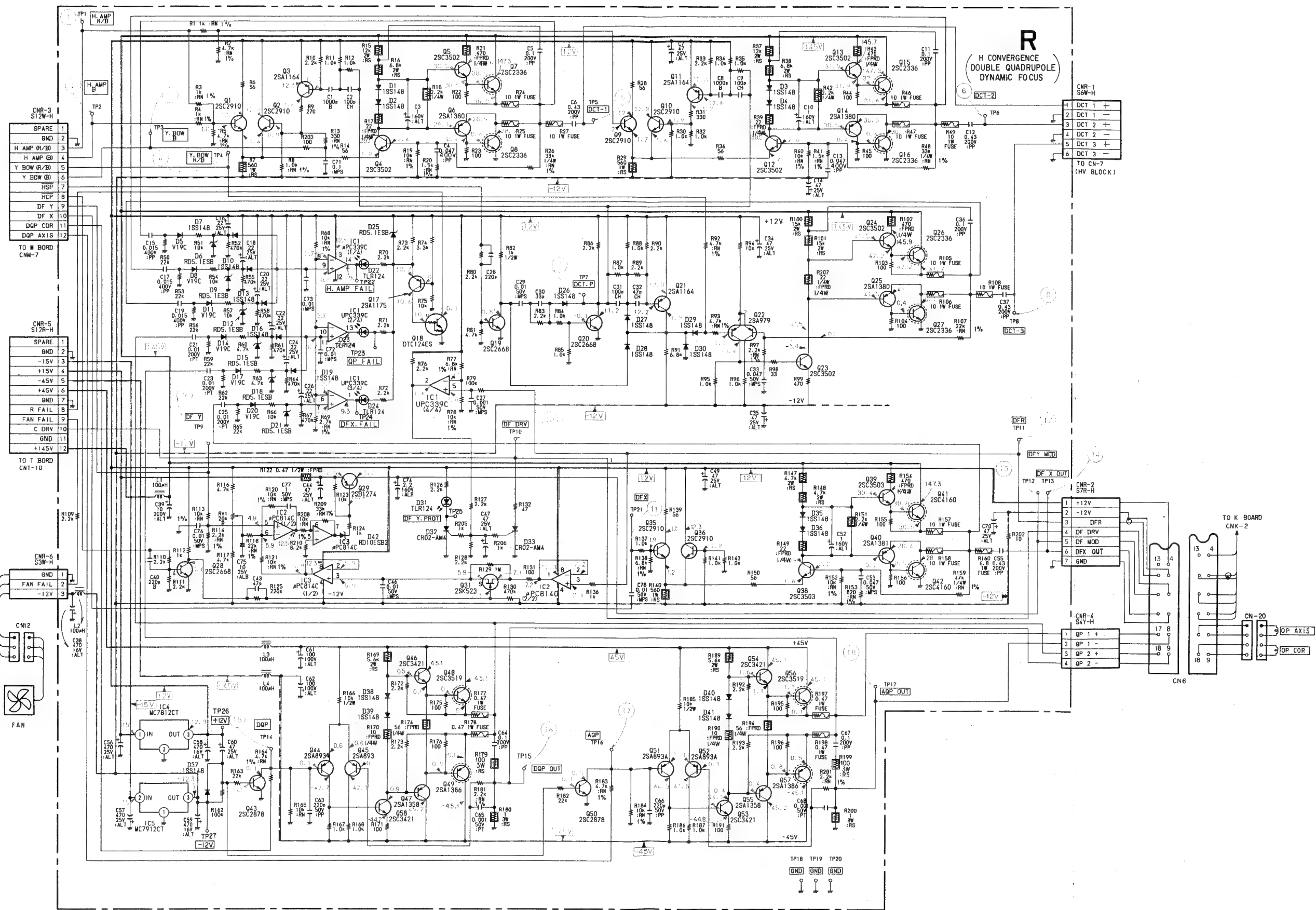


DDM-2801C/2802C
DDM-2801C2/2802C2

R



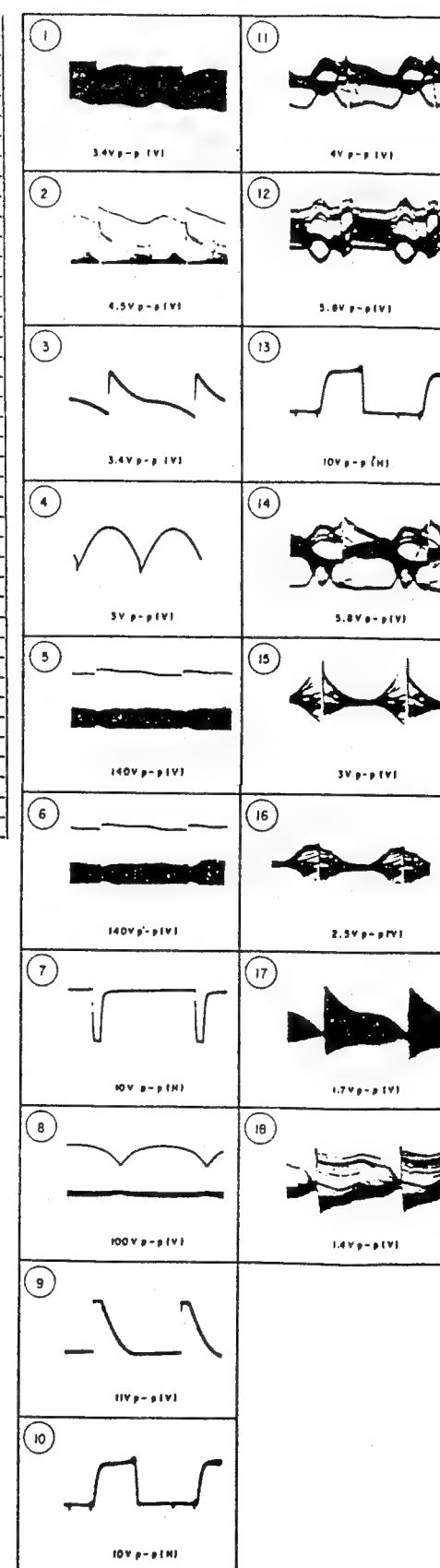
• R BOARD (DDM-2801C only; Serial No. 10,090-2,000,043)



—R Board—

IC1	FAIL COMP	D1	BIAS 1
2	DFY MODU	2	BIAS 2
3	DFY BUFF	3	BIAS 3
4	12V REG	4	BIAS 4
5	-12V REG	5	RECT 1
		6	CLAMP 1
Q1	DCT PREAMP 1	7	SW 1
2	DCT PREAMP 2	8	RECT 2
3	DCT PULSE 1	9	CLAMP 2
4	DCT DRIVE 1	10	SW 2
5	DCT DRIVE 2	11	RECT 3
6	DCT DRIVE 3	12	CLAMP 3
7	DCT OUT 1	13	SW 3
8	DCT OUT 2	14	RECT 4
9	DCT PREAMP 3	15	CLAMP 4
10	DCT PREAMP 4	16	SW 4
11	DCT PULSE 2	17	RECT 5
12	DCT DRIVE 4	18	CLAMP 5
13	DCT DRIVE 5	19	SW 5
14	DCT DRIVE 6	20	RECT 6
15	DCT OUT 3	21	CLAMP 6
16	DCT OUT 4	22	FAIL IND 1
17	R FAIL 1	23	FAIL IND 2
18	R FAIL 2	24	FAIL IND 3
19	DCT PULSE 3	25	CLAMP 6
20	DCT PULSE 4	26	SPEED UP
21	DCT PULSE 5	27	DCT PULSE 1
22	DCT PREAMP 4	28	DCT PULSE 2
23	DCT DRIVE 7	29	DCT PULSE 3
24	DCT DRIVE 8	30	DCT PULSE 4
25	DCT DRIVE 9	31	DFY FAIL
26	DCT OUT 5	32	DFY PROT 1
27	DCT OUT 6	33	DFY PROT 2
28	H-CENTER PULSE	35	BIAS
29	DFY OUT	36	BIAS
31	SAMPLE HOLD	37	MUTING
35	DFX PREAMP 1	38	BIAS
36	DFX PREAMP 2	39	BIAS
38	DFX DRIVE 1	40	BIAS
39	DFX DRIVE 2	41	BIAS
40	DFX DRIVE 3	42	BIAS
41	DFX OUT 1		
42	DFX OUT 2		
43	DQP MUTING		
44	DQP PREAMP 1		
45	DQP PREAMP 2		
46	DQP DRIVE 1		
47	DQP DRIVE 2		
48	DQP OUT 1		
49	DQP OUT 2		
50	DQP MUTING		
51	AQP PREAMP 1		
52	AQP PREAMP 2		
53	AQP DRIVE 1		
54	AQP DRIVE 2		
55	AQP DRIVE 3		
56	AQP OUT 1		
57	AQP OUT 2		
58	DQP DRIVE 3		

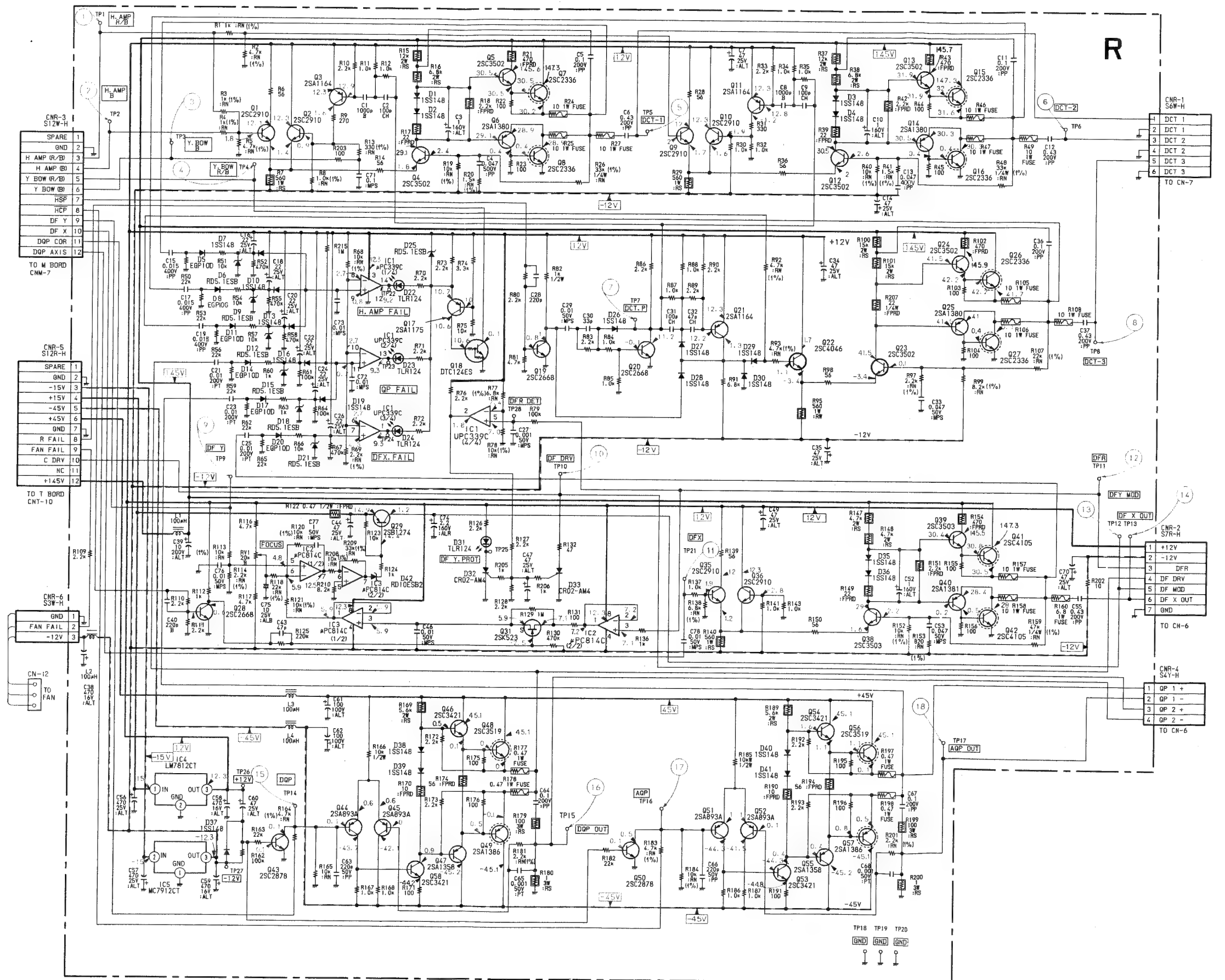
—R Board—



DDM-2801C/2802C
DDM-2801C2/2802C2

DDM-2801C/2802C
DDM-2801C2/2802C2

• R BOARD
(DDM-2801C; Serial No. 2,000,044 and higher)
(DDM-2802C; Serial No. 2,000,021 and higher)
(DDM-2801C2; Serial No. 2,000,050 and higher)
(DDM-2802C2; Serial No. 2,000,013 and higher)



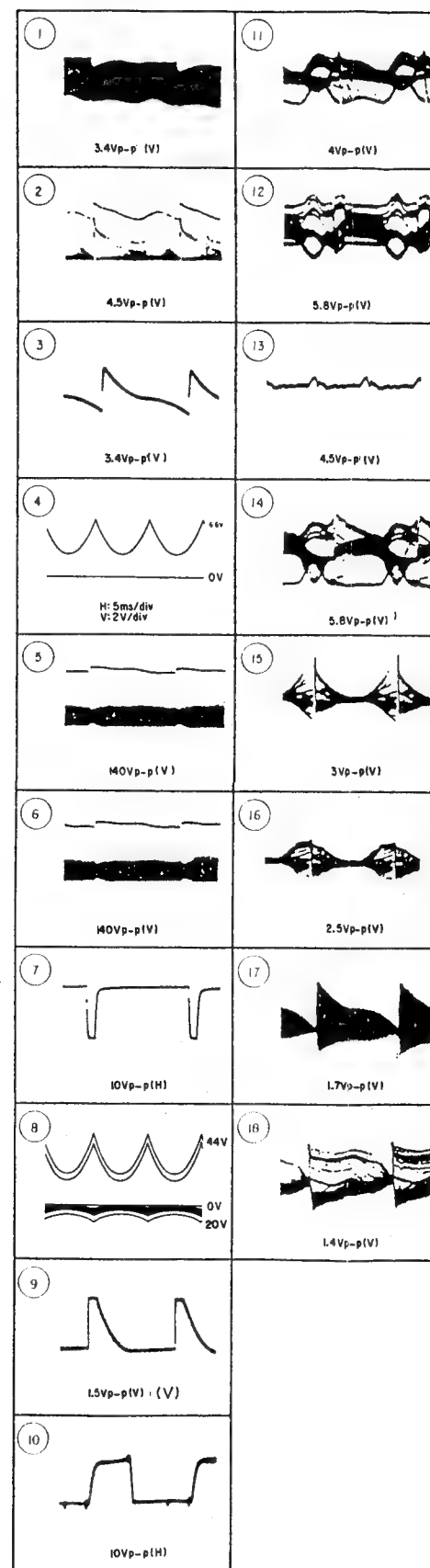
—R BOA

IC1	1
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Q1	2
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—R BOARD—

1C1	FAIL COMP	D1	BIAS 1
2	DFY MODU	2	BIAS 2
3	DFY BUFF	3	BIAS 3
4	12V REG	4	BIAS 4
5	-12V REG	5	RECT 1
		6	CLAMP 1
Q1	DCT PREAMP 1	7	SW 1
2	DCT PREAMP 2	8	RECT 2
3	DCT PULSE 1	9	CLAMP 2
4	DCT DRIVE 1	10	SW 2
5	DCT DRIVE 2	11	RECT 3
6	DCT DRIVE 3	12	CLAMP 3
7	DCT OUT 1	13	SW 3
8	DCT OUT 2	14	RECT 4
9	DCT PREAMP 3	15	CLAMP 4
10	DCT PREAMP 4	16	SW 4
11	DCT PULSE 2	17	RECT 5
12	DCT DRIVE 4	18	CLAMP 5
13	DCT DRIVE 5	19	SW 5
14	DCT DRIVE 6	20	RECT 6
15	DCT OUT 3	21	CLAMP 6
16	DCT OUT 4	22	FAIL IND 1
17	R FAIL 1	23	FAIL IND 2
18	R FAIL 2	24	FAIL IND 3
19	DCT PULSE 3	25	CLAMP 6
20	DCT PULSE 4	26	SPEED UP
21	DCT PULSE 5	27	DCT PULSE 1
22	DCT PREAMP 4	28	DCT PULSE 2
23	DCT DRIVE 7	29	DCT PULSE 3
24	DCT DRIVE 8	30	DCT PULSE 4
25	DCT DRIVE 9	31	DFY FAIL
26	DCT OUT 5	32	DFY PROT 1
27	DCT OUT 6	33	DFY PROT 2
28	H-CENTER PULSE	35	BIAS
29	DFY OUT	36	BIAS
31	SAMPLE HOLD	37	MUTING
35	DFX PREAMP 1	38	BIAS
36	DFX PREAMP 2	39	BIAS
38	DFX DRIVE 1	40	BIAS
39	DFX DRIVE 2	41	BIAS
40	DFX DRIVE 3	42	BIAS
41	DFX OUT 1		
42	DFX OUT 2		
43	DQP MUTING		
44	DQP PREAMP 1		
45	DQP PREAMP 2		
46	DQP DRIVE 1		
47	DQP DRIVE 2		
48	DQP OUT 1		
49	DQP OUT 2		
50	DQP MUTING		
51	AQP PREAMP 1		
52	AQP PREAMP 2		
53	AQP DRIVE 1		
54	AQP DRIVE 2		
55	AQP DRIVE 3		
56	AQP OUT 1		
57	AQP OUT 2		
58	DQP DRIVE 3		

—R BOARD—



R

(H.CONVERGENCE, DUBLE QUADRUPOLE, DYNAMIC FOCUS)

R

R

DDM-2801C/2802C
DDM-2801C2/2802C2DDM-2801C/2802C
DDM-2801C2/2802C2

—R BOARD—

—R BOARD— (DDM-2801C; Serial No. 2,000,044 and higher) (DDM-2801C2; Serial No. 2,000,050 and higher)
(DDM-2802C; Serial No. 2,000,021 and higher) (DDM-2802C2; Serial No. 2,000,013 and higher)

IC	D20	C-6
IC1	B-7	D21
IC2	E-8	D22
IC3	F-9	D23
IC4	B-12	D24
IC5	F-12	D25
		D26
		D27
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		E-6
		E-7
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R

M2

(DEFLECTION, FOCUS, D/A BLOCK)

M2

M2A

—M2 BOARD— (DDM-2801C; Serial No. 2,000,006 and higher) (DDM-2801C2; Serial No. 2,000,004 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher) (DDM-2802C2; Serial No. 2,000,002 and higher)

—M2A Board—

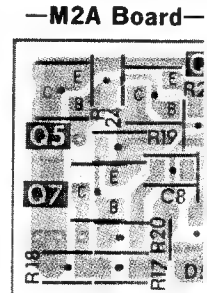
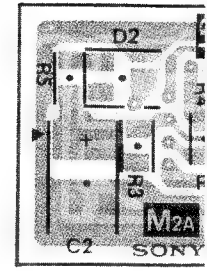
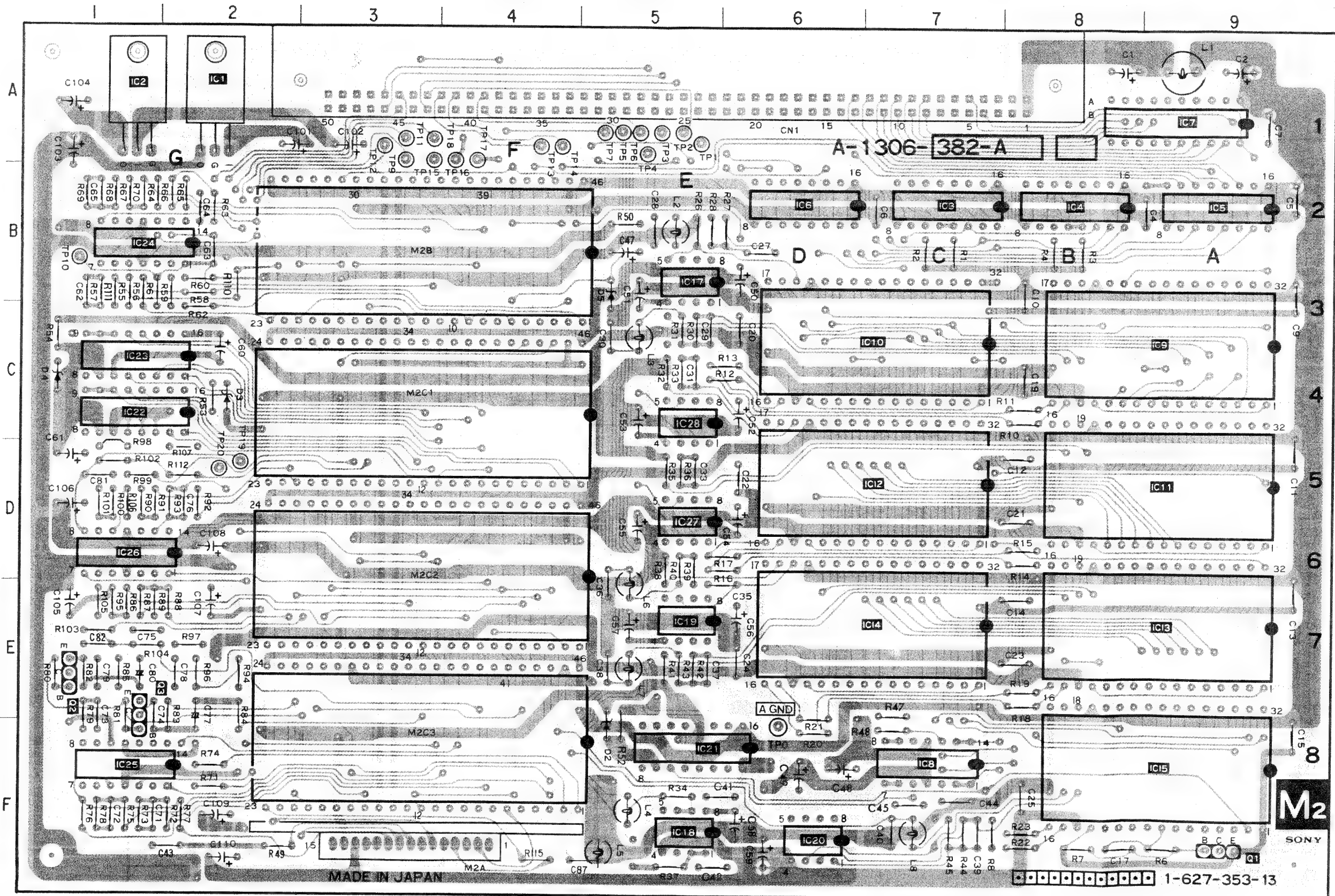
—M2 BOARD—

IC	
IC1	A-2
IC2	A-1
IC3	B-7
IC4	B-8
IC5	B-9
IC6	B-6
IC7	A-9
IC8	F-7
IC9	C-9
IC10	C-7
IC11	D-9
IC12	D-7
IC13	E-9
IC14	E-7
IC15	F-9
IC17	B-5
IC18	F-5
IC19	E-5
IC20	F-6
IC21	F-5
IC22	C-1
IC23	C-1
IC24	B-1
IC25	F-1
IC26	D-1
IC27	D-5
IC28	C-5

TRANSISTOR	
Q1	F-9
Q2	E-1
Q3	E-1

DIODE	
D2	F-5
D3	C-2
D4	C-1
D5	B-5

TESTPOINT	
TP0	F-6
TP1	A-5
TP2	A-5
TP3	A-3
TP4	A-4
TP5	A-5
TP6	A-5
TP7	A-5
TP9	A-3
TP10	B-1
TP11	A-3
TP12	A-3
TP13	A-4
TP14	A-4
TP15	A-3
TP16	A-4
TP17	A-4
TP18	A-3
TP19	D-2
TP20	D-2



• pattern from the side with
• pattern of the rear side.

DDM-2801C/2802C
DDM-2801C2/2802C2

DDM-2801C/2802C
DDM-2801C2/2802C2

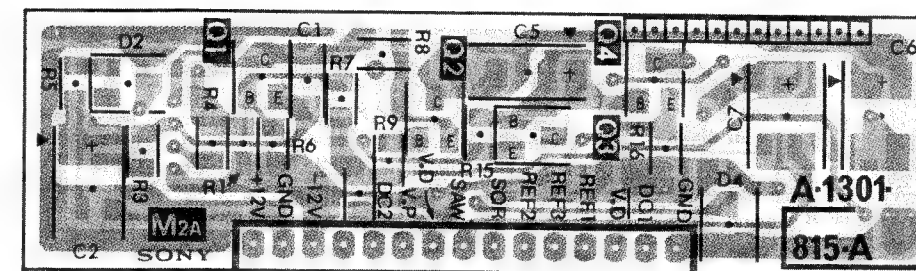
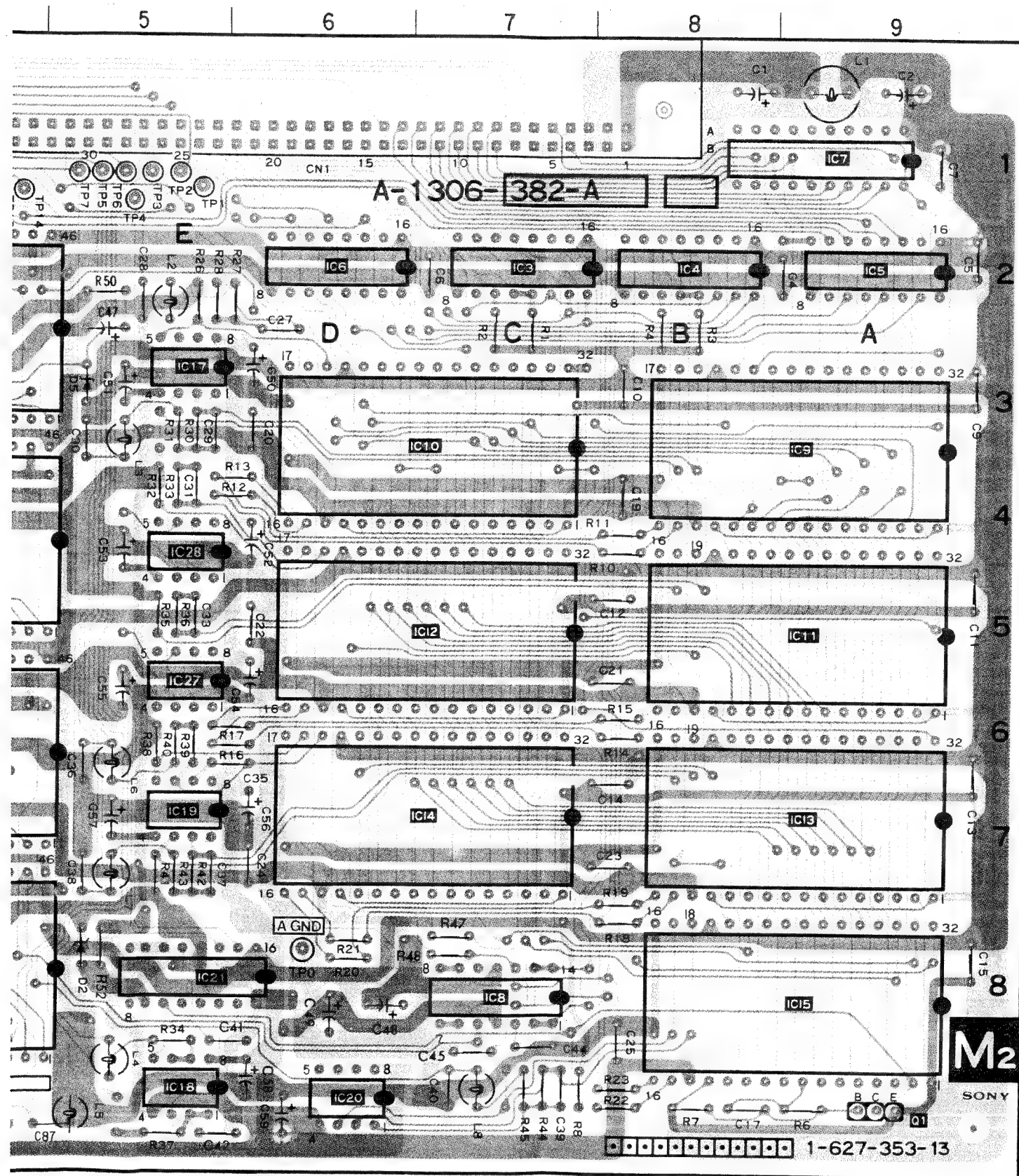
M2

M2A

(REFERENCE SIGNAL GENERATOR)

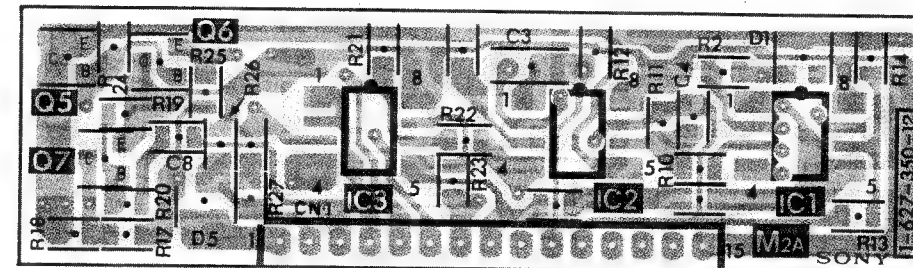
Serial No. 2,000,004 and higher)
Serial No. 2,000,002 and higher)

—M2A Board— Conductor side— (DDM-2801C ; Serial No. 2,000,006 and higher)
(DDM-2802C ; Serial No. 2,000,001 and higher)
(DDM-2801C2 ; Serial No. 2,000,004 and higher)
(DDM-2802C2 ; Serial No. 2,000,002 and higher)



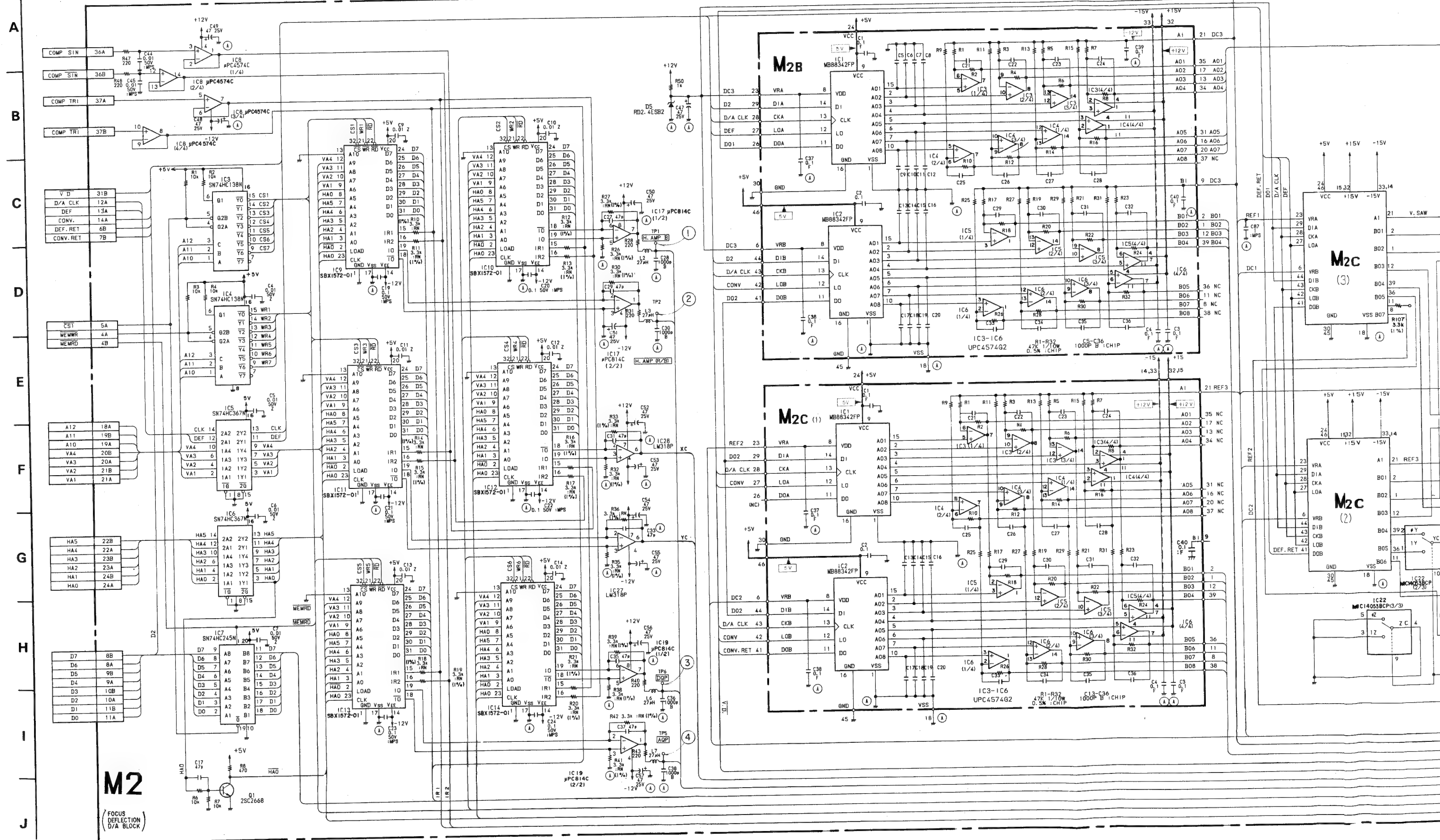
- : pattern from the side with enables seeing.
- : pattern of the rear side.

—M2A Board— Component side—



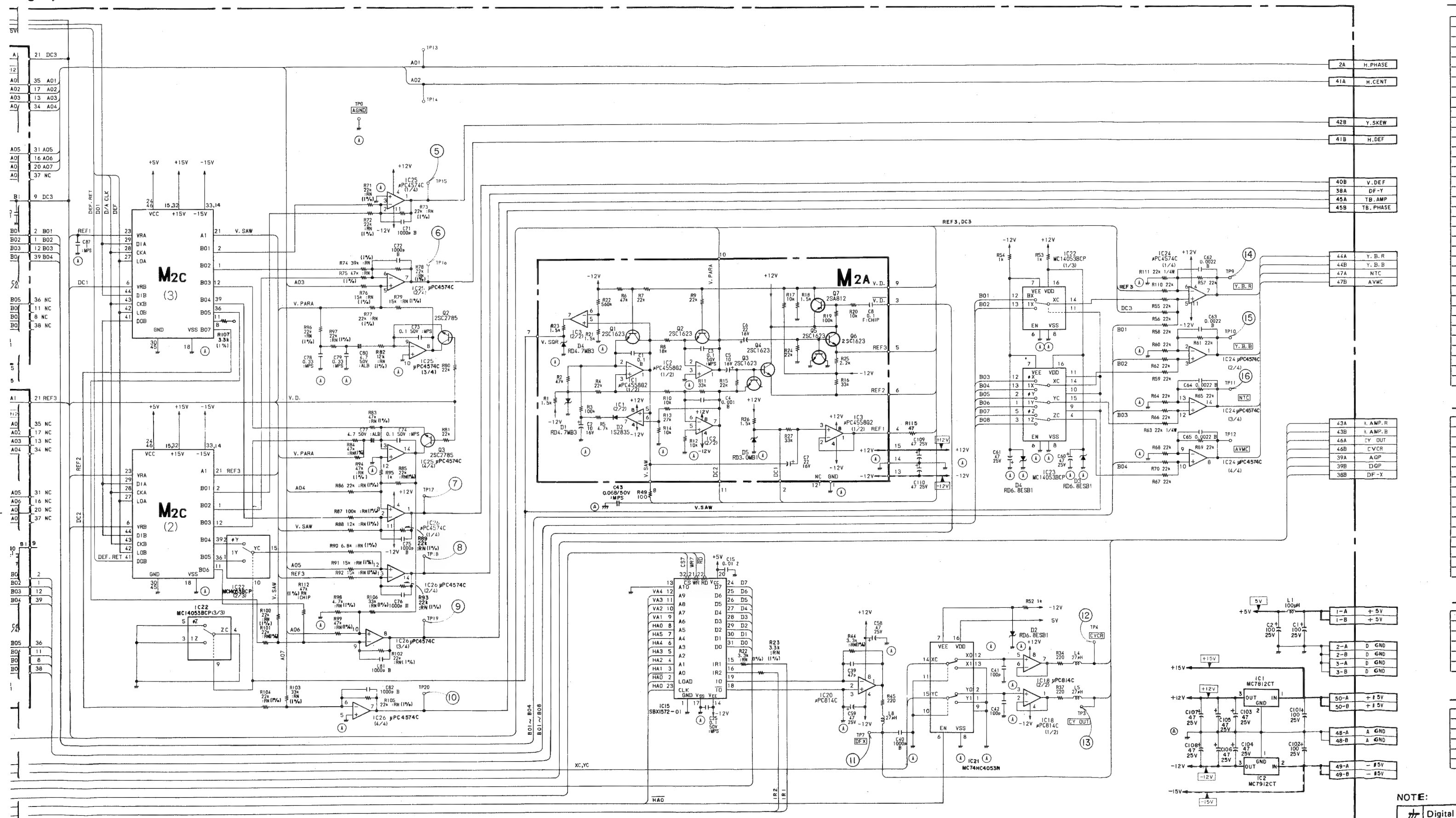
- : pattern from the side with enables seeing.
- : pattern of the rear side.

M2 BOARDS (DDM-2801C; Serial No. 2,000,006 and higher) (DDM-2802C; Serial No. 2,000,001 and higher) (DDM-2801C2; Serial No. 2,000,004 and higher) (DDM-2802C2; Serial No. 2,000,002 and higher)



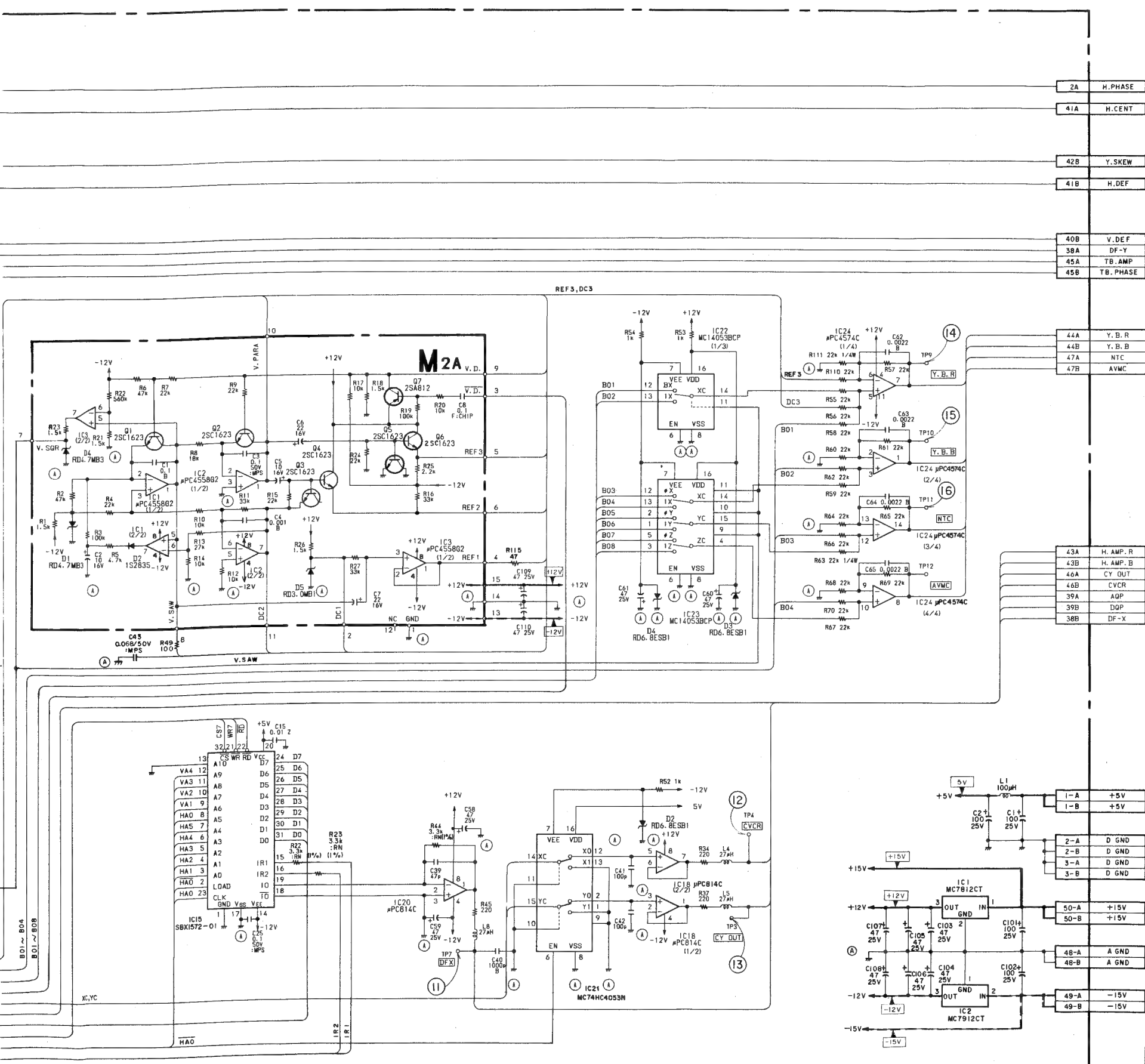
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

1 higher)



NOTE:
Digital
Analog

20 21 22 23 24 25 26 27 28 29 30



-M2 BOARD-

IC1	+12V REG
2	-12V REG
3	DECODER
4	DECODER
5	ADRS BUFF
6	ADRS BUFF
7	DATA BUFF
8	(QUAD) OP AMP
9	DIGITAL WAVE GEN
10	DIGITAL WAVE GEN
11	DIGITAL WAVE GEN
12	DIGITAL WAVE GEN
13	DIGITAL WAVE GEN
14	DIGITAL WAVE GEN
15	DIGITAL WAVE GEN
17	(DUAL) OP AMP
18	(DUAL) OP AMP
19	(DUAL) OP AMP
20	(DUAL) OP AMP
21	ANALOG SWITCH
22	ANALOG SWITCH
23	ANALOG SWITCH
24	(QUAD) OP AMP
25	(QUAD) OP AMP
26	(QUAD) OP AMP
27	OP AMP
28	OP AMP
Q1	INVERTER
2	DISCHARGER
3	DISCHARGER
D2	-6.5V REG
3	+6.5V REG
4	-6.5V REG
5	+2.5V REG

-M2A BOARD-

IC1	DUAL OA AMP
2	DUAL OA AMP
3	DUAL OA AMP
Q1	DISCHARGER
2	DISCHARGER
3	CLAMPER
4	CLAMPER
5	CLAMPER
6	CLAMPER
7	INVERTER
D1	-5V REF VOLT
2	RECT
4	SLICE
5	+3V REF VOLT

-M2B BOARD-

IC1	8CH DAC
2	8CH DAC
3	(QUAD) OP AMP
4	(QUAD) OP AMP
5	(QUAD) OP AMP
6	(QUAD) OP AMP

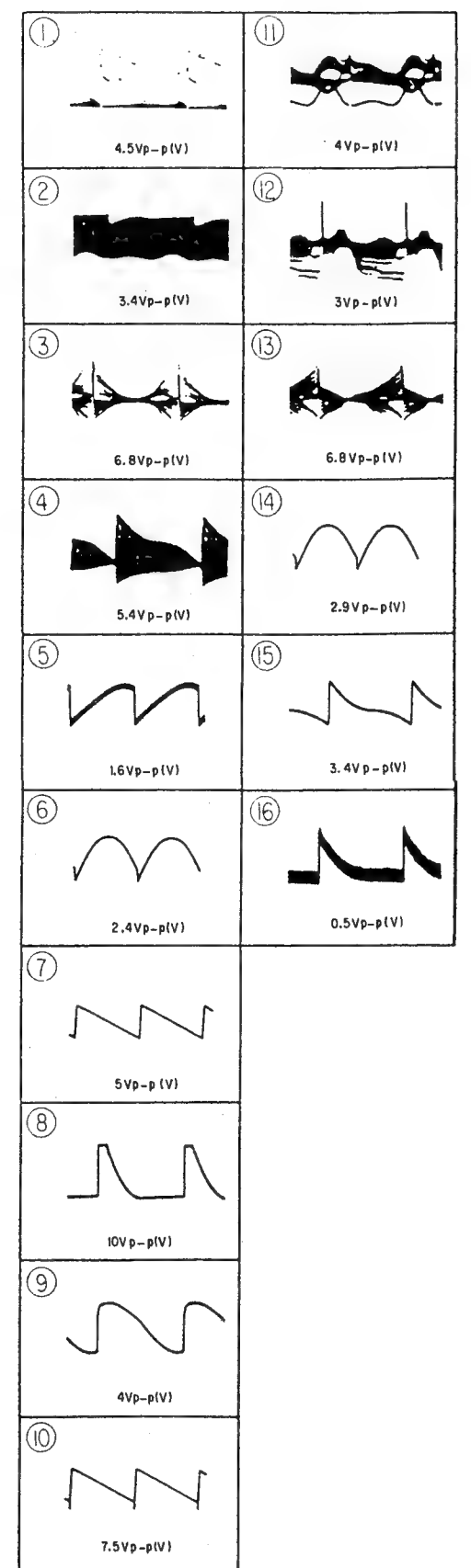
-M2C BOARD-

IC1	8CH DAC
2	8CH DAC
3	(QUAD) OP AMP
4	(QUAD) OP AMP
5	(QUAD) OP AMP
6	(QUAD) OP AMP

NOTE:

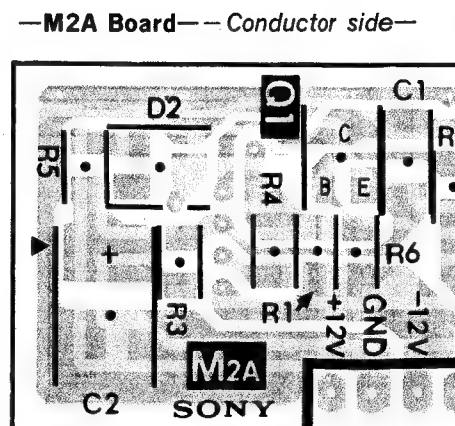
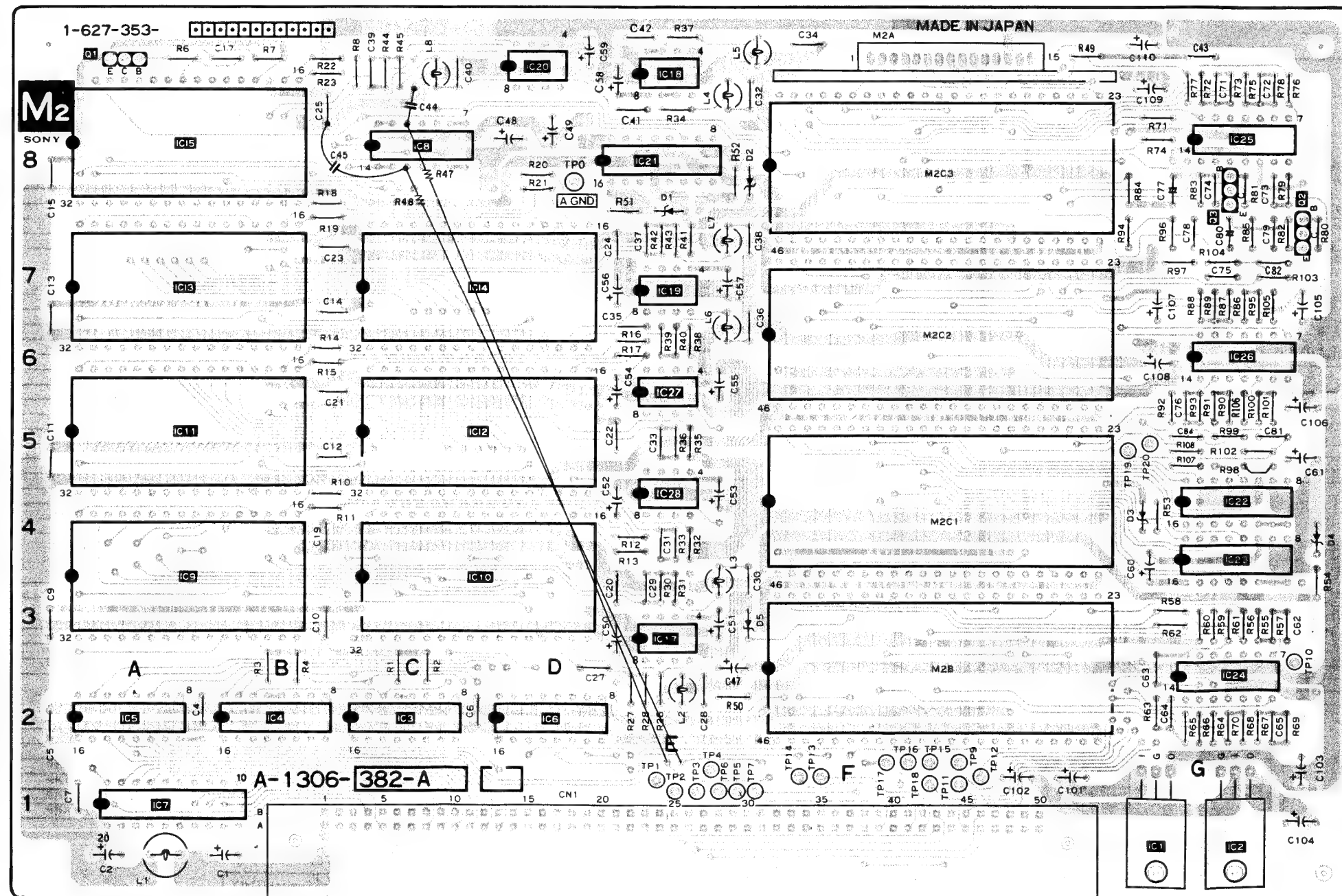
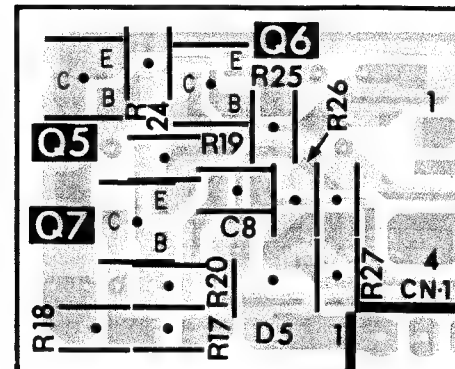
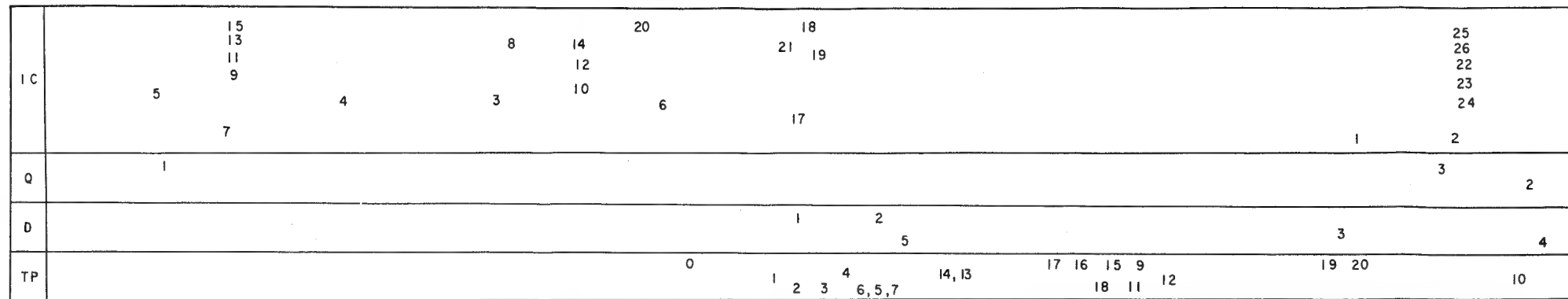
	Digital GND
	Analog GND

-M2 BOARD-



M2C

—M2A Board— —Component side—

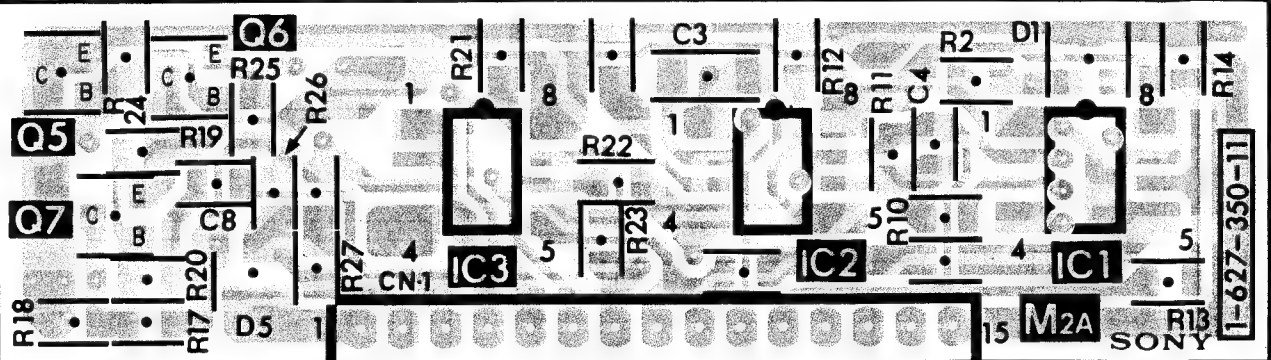


M2A M2B M2C

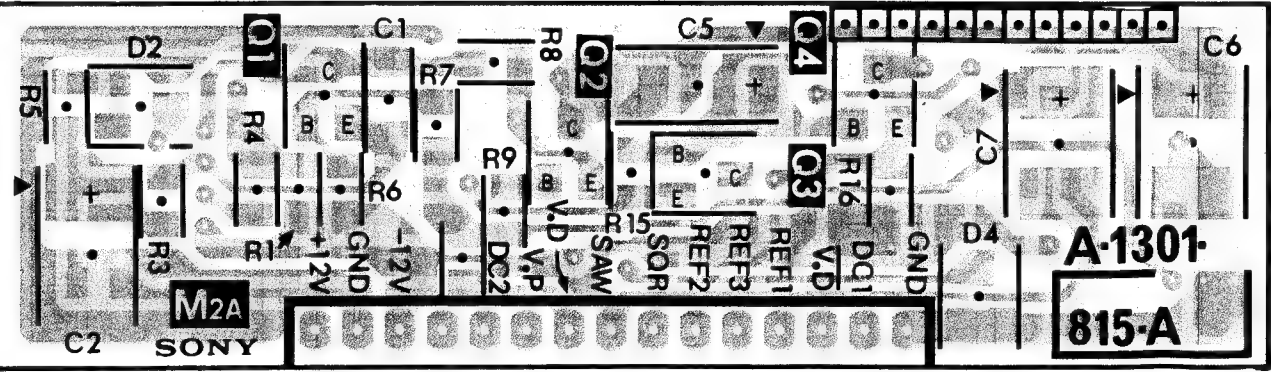
M2A

—M2A BOARD— (DDM-2801C; Serial No. up-to 2,000,005) (DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C; Serial No. 10,001—10,003) (DDM-2802C2; Serial No. up-to 2,000,001)

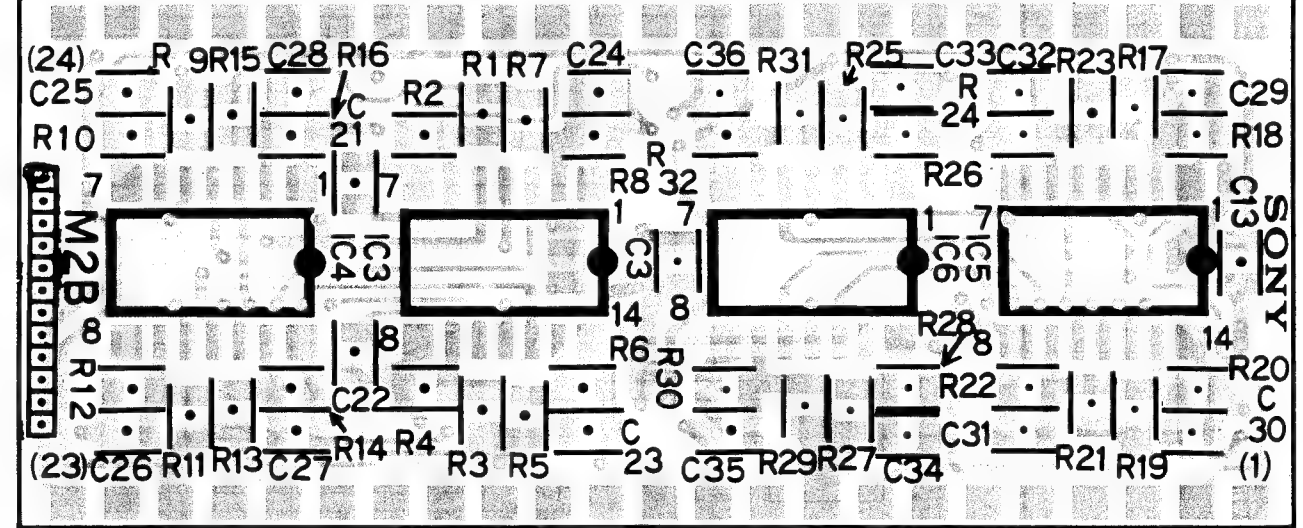
—M2A Board— —Component side—



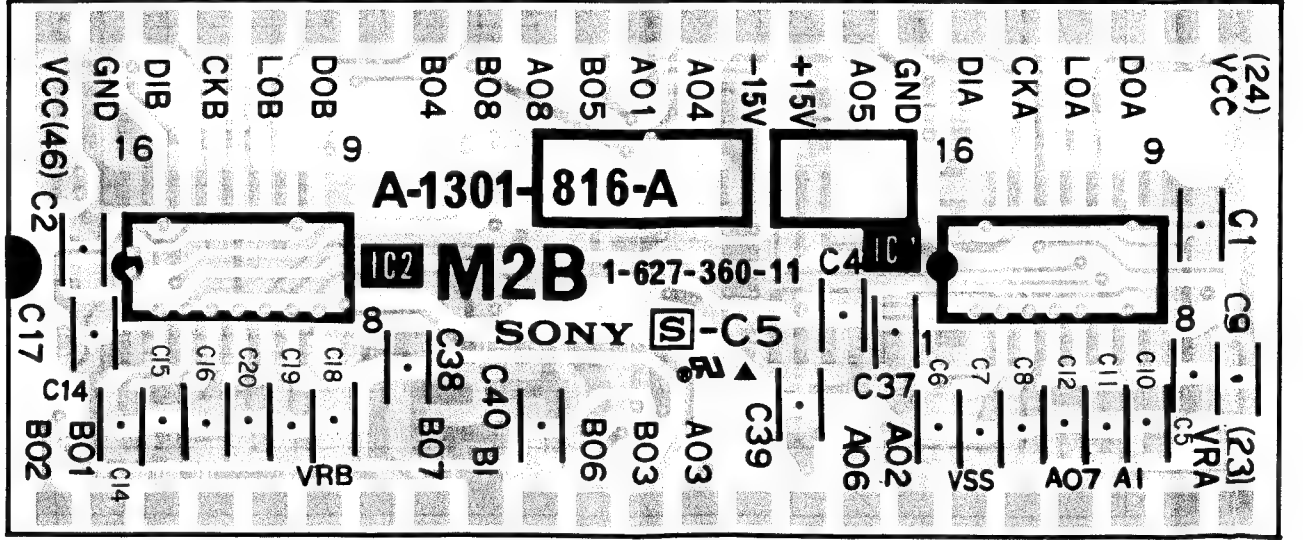
—M2A Board— —Conductor side—



—M2B Board— —Component side—



—M2B Board— —Conductor side—



DDM-2801C/2802C
DDM-2801C2/2802C2

DDM-2801C/2802C
DDM-2801C2/2802C2

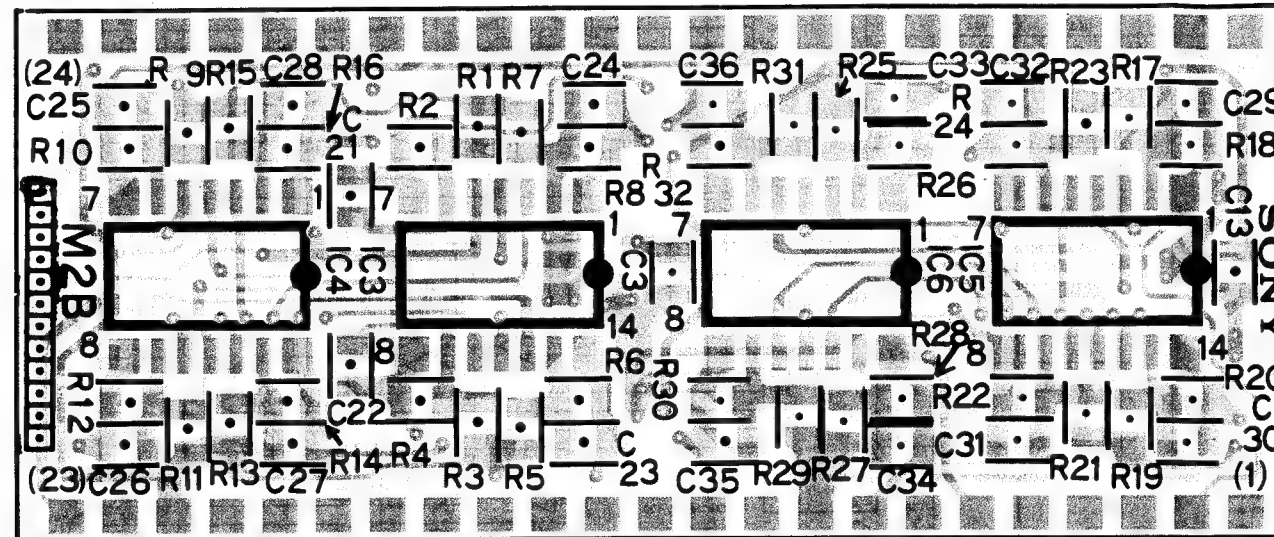
M2A

M2B

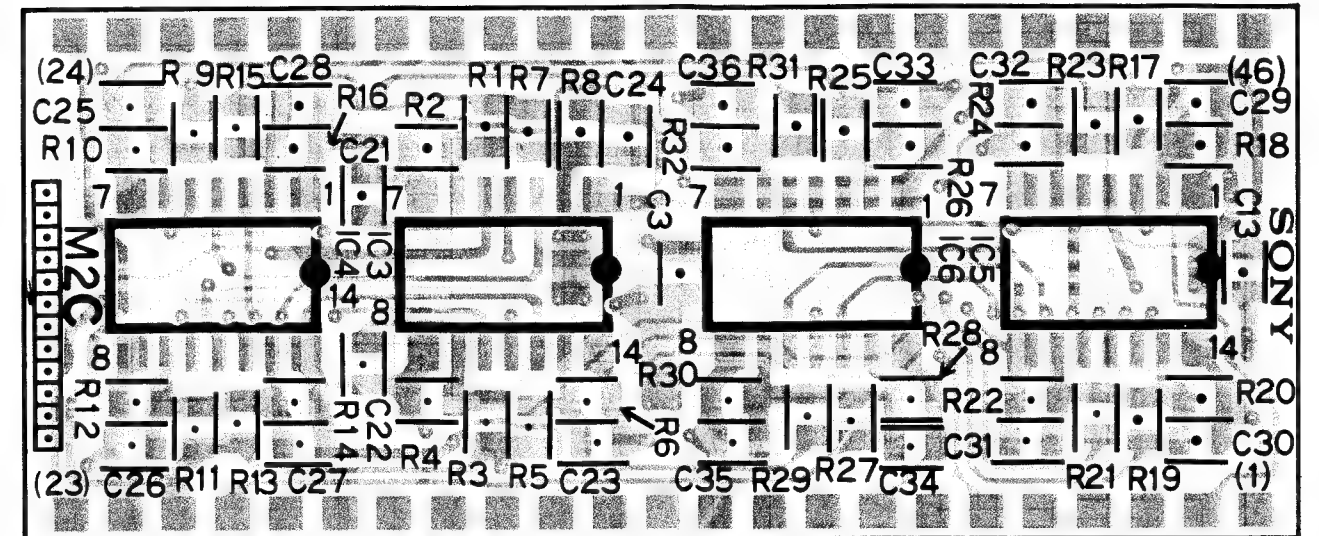
M2C

all
al No. up-to 2,000,001)

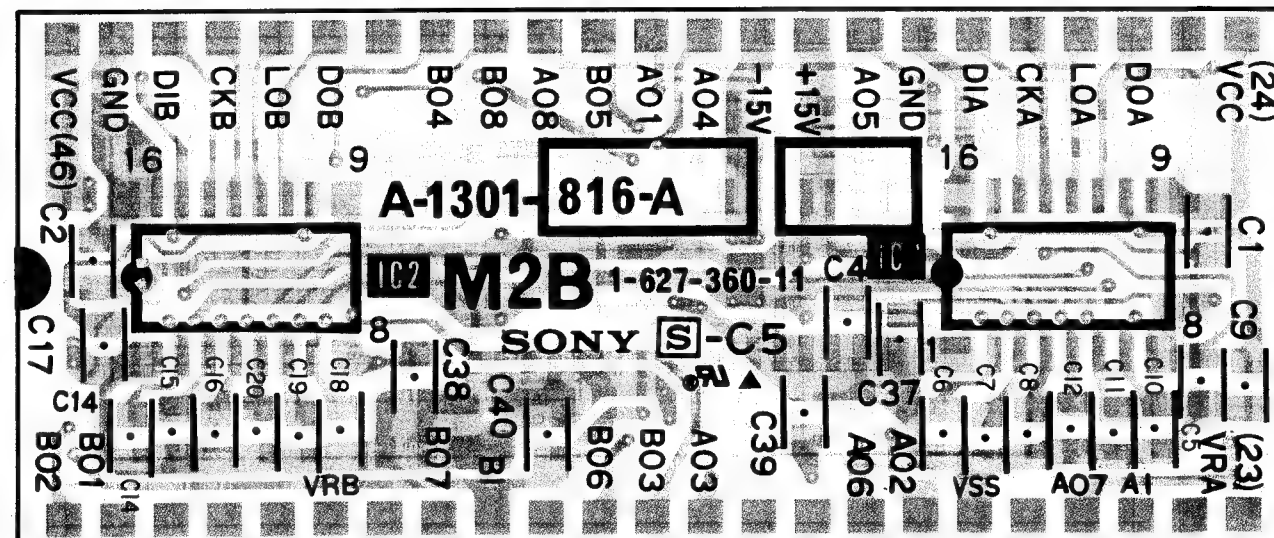
—M2B Board—Component side—



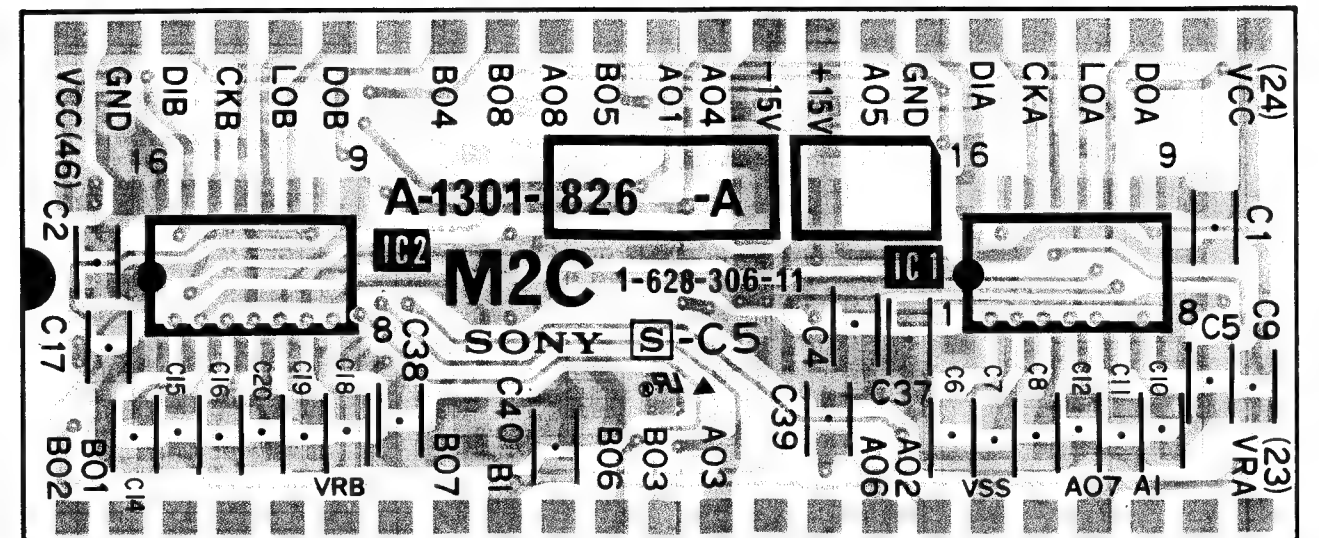
—M2C Board—Component side—



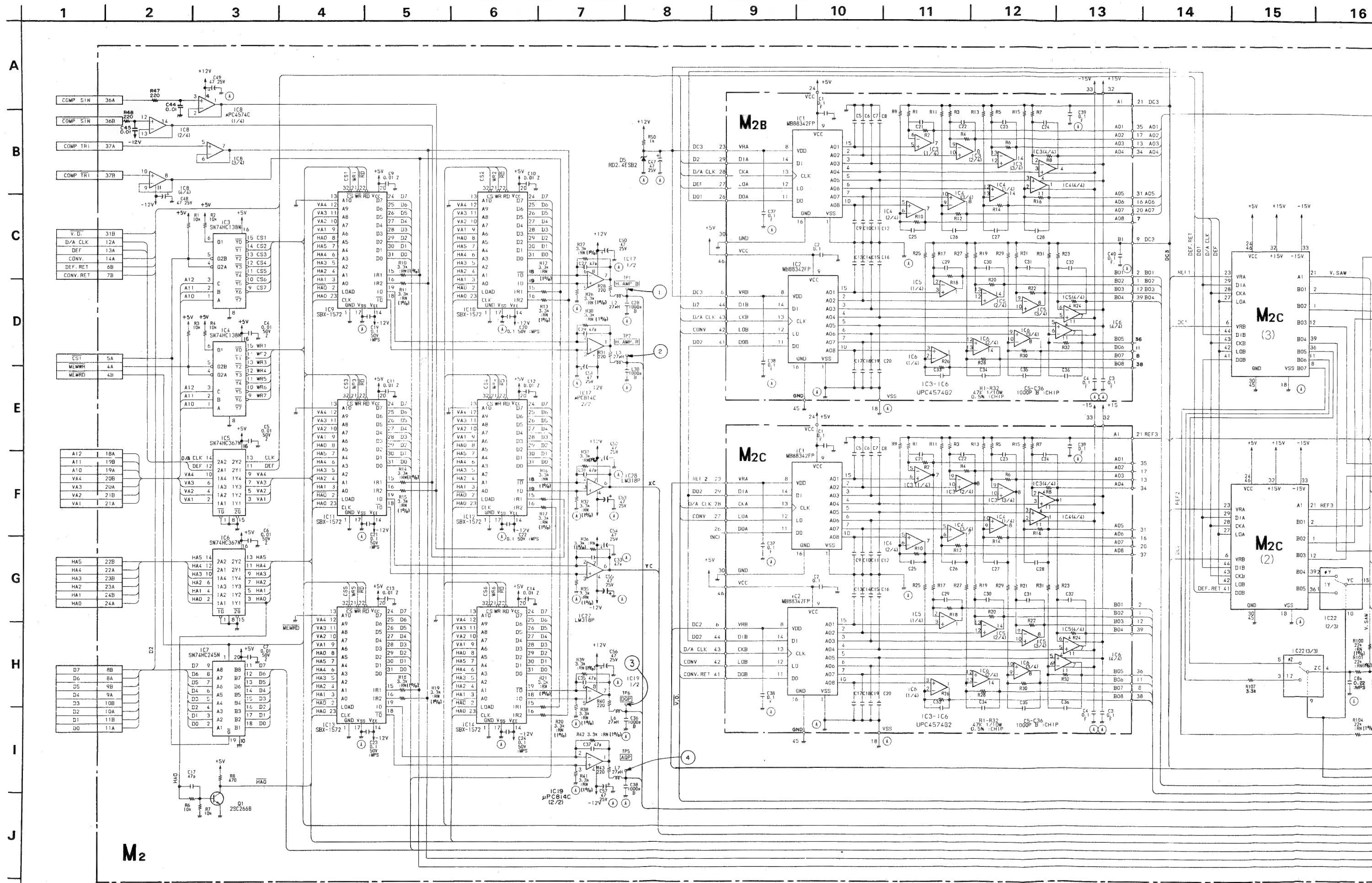
—M2B Board—Conductor side—



—M2C Board—Conductor side—



• : pattern from the side with enables seeing.
• : pattern of the rear side.



14

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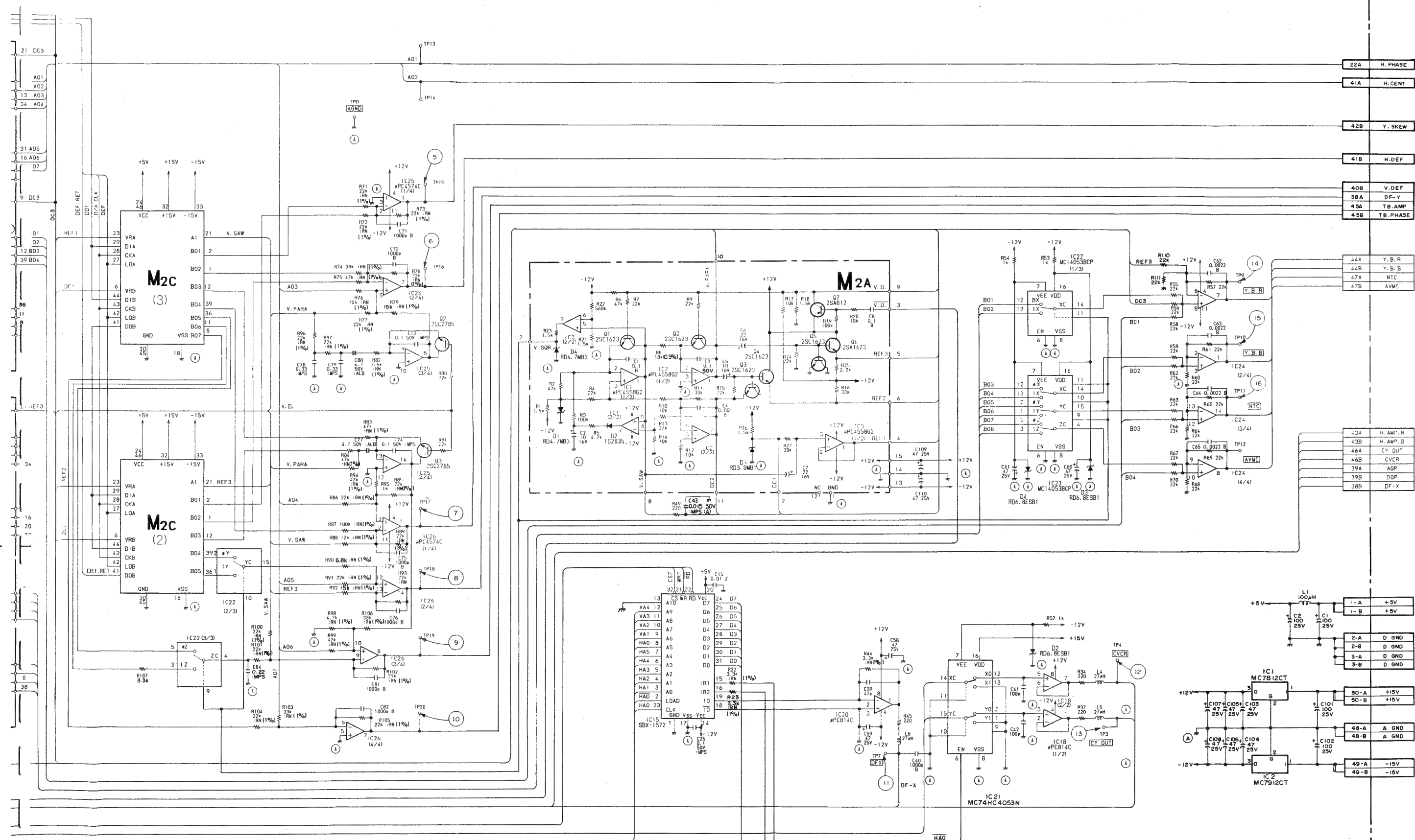
26

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• M2 and M2A BOAR
(DDM-2801C ; Seri
(DDM-2802C ; Seri
(DDM-2801C2 ; Ser
(DDM-2802C2 ; Ser

• M2B and M2C BOA
(DDM-2801C/2802



-M2

IC1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12
12	13
13	14
14	15
15	16
16	17
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88	89
89	90
90	91
91	92
92	93
93	94
94	95
95	96
96	97
97	98
98	99
99	100

• M2 and M2A BOARD

(DDM-2801C; Serial No. up-to 2,000,005)
(DDM-2802C; Serial No. 10,001—10,003)
(DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C2; Serial No. up-to 2,000,001)

• M2B and M2C BOARD

(DDM-2801C/2802C/2801C2/2802C2; Serial No. 10,001 and higher)

—M2 Board—

IC1	+12V REG
2	-12V REG
3	DECODER
4	DECODER
5	ADRS BUFF
6	ADRS BUFF
7	DATA BUFF
8	(QUAD) OP AMP
9	DIGITAL WAVE GEN
10	DIGITAL WAVE GEN
11	DIGITAL WAVE GEN
12	DIGITAL WAVE GEN
13	DIGITAL WAVE GEN
14	DIGITAL WAVE GEN
15	DIGITAL WAVE GEN
17	(DUAL) OP AMP
18	(DUAL) OP AMP
19	(DUAL) OP AMP
20	(DUAL) OP AMP
21	ANALOG SWITCH
22	ANALOG SWITCH
23	ANALOG SWITCH
24	(QUAD) OP AMP
25	(QUAD) OP AMP
26	(QUAD) OP AMP
27	OP AMP
28	OP AMP
Q1	INVERTER
2	DISCHARGER
3	DISCHARGER
2	-6.5V REG
3	+6.5V REG
4	-6.5V REG
5	+2.5V REG

—M2A Board—

IC1	DUAL OA AMP
2	DUAL OA AMP
3	DUAL OA AMP
Q1	DISCHARGER
2	DISCHARGER
3	CLAMPER
4	CLAMPER
5	CLAMPER
6	CLAMPER
7	INVERTER
D1	-5V REF VOLT
2	RECT
4	SLICE
5	+3V REF VOLT



—M2B Board—

IC1	8CH DAC
2	8CH DAC
3	(QUAD) OP AMP
4	(QUAD) OP AMP
5	(QUAD) OP AMP
6	(QUAD) OP AMP

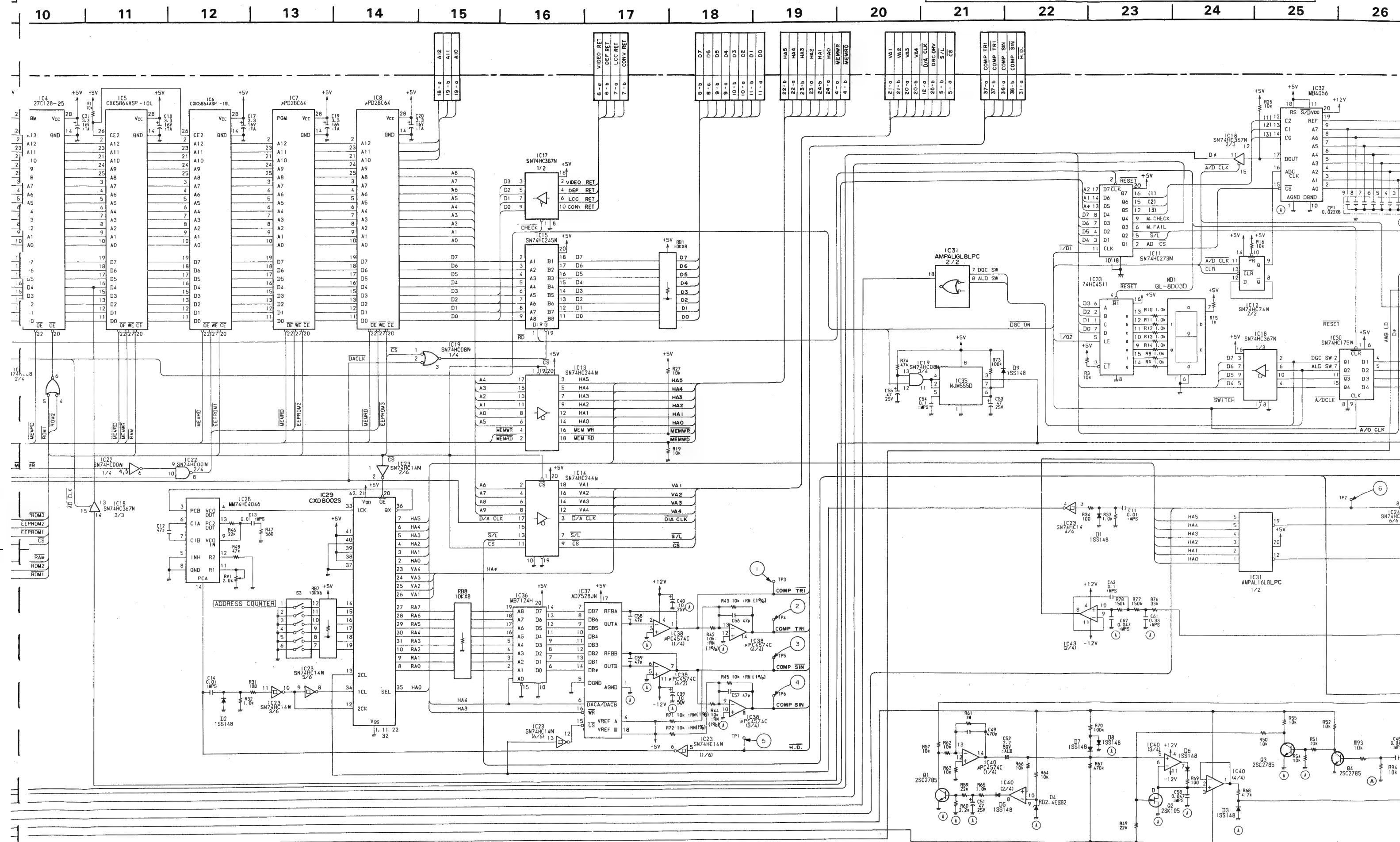
—M2C Board—

IC1	8CH DAC
2	8CH DAC
3	(QUAD) OP AMP
4	(QUAD) OP AMP
5	(QUAD) OP AMP
6	(QUAD) OP AMP

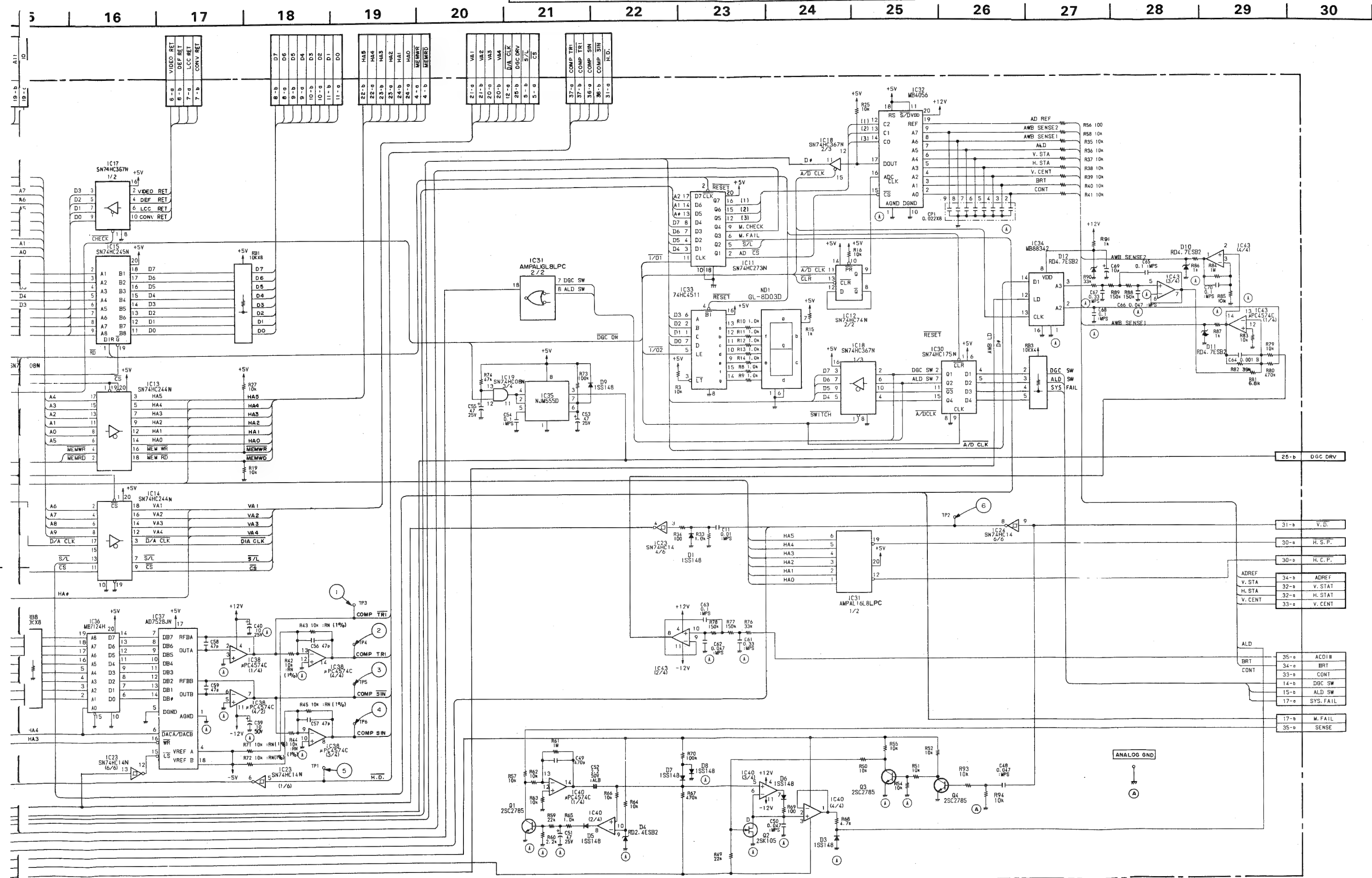
NOTE:

	Digital GND
	Analog GND





DDM-2801C/2802C
DDM-2801C2/2802C2



DDM-2801C/2802C
DDM-2801C2/2802C2

DDM-2801C/2802C
DDM-2801C2/2802C2

M1

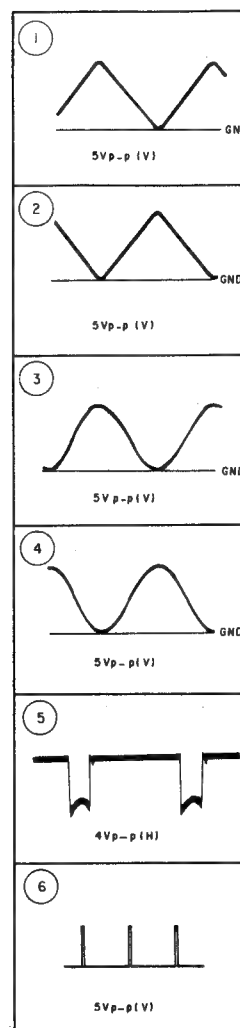
(CPU)

—M1 BOARD— (DDM-2801C; Serial No. up-to 2,000,005) (DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C; Serial No. 10,001—10,003) (DDM-2802C2; Serial No. up-to 2,000,001)

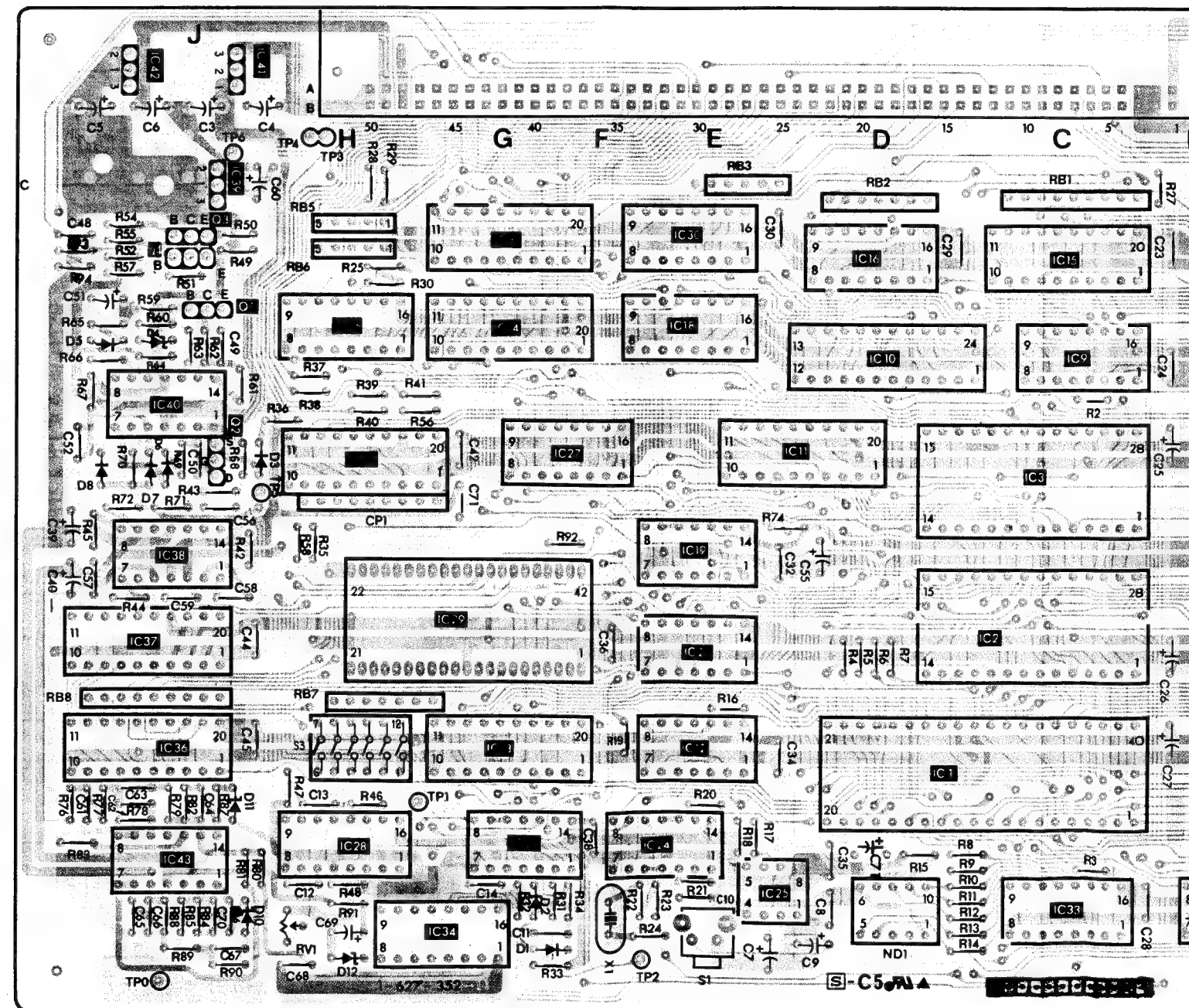
—M1 Board—

IC1	Z80-CPU
2	Z80-CTC
3	USART
4	PROGRAM ROM
5	WORKING RAM
6	WORKING RAM
7	DATA MEMORY
8	DATA MEMORY
9	DECORDER
10	I/O DECORDER
11	LATCH
12	CLOCK GENE
13	BUFFER
14	BUFFER
15	BUFFER
16	LOAD PULSE GENE
17	BUFFER
18	BUFFER
19	ANG GATE
20	OR GATE
21	OR GATE
22	NAND GATE
23	SCHMITT INV.
24	SCHMITT INV.
25	RESET IC
26	RS422A INTERFACE
27	DATA SELECTOR
28	PLL
29	ADDRESS COUNTER
30	STATUS HOLD
31	CLAMP PULSE GENE/GATE
32	A/D CONVERTER
33	SEQUENT DRIVER
34	D/A CONVERTER
35	DEGAUSS DRIVE GENE
36	COMPENSATION ROM
37	COMPENSATION WAVE GENE
38	QUAD OP AMP
39	-5V REG
40	QUAD OP AMP
41	12V REG
42	-12V REG
43	QUAD OP AMP
Q1	AGC
2	SWITCHER
3	INVERTER
4	INVERTER
D1	PROTECT
2	PROTECT
3	PROTECT
4	REF VOLT
5	RECTIFIER
6	PEAK HOLD
7	CLAMPER
8	CLAMPER
9	DISCHARGE
10	4.7V LIMITTER
11	4.7V LIMITTER
12	4.7V REGULAT

—M1 Board—

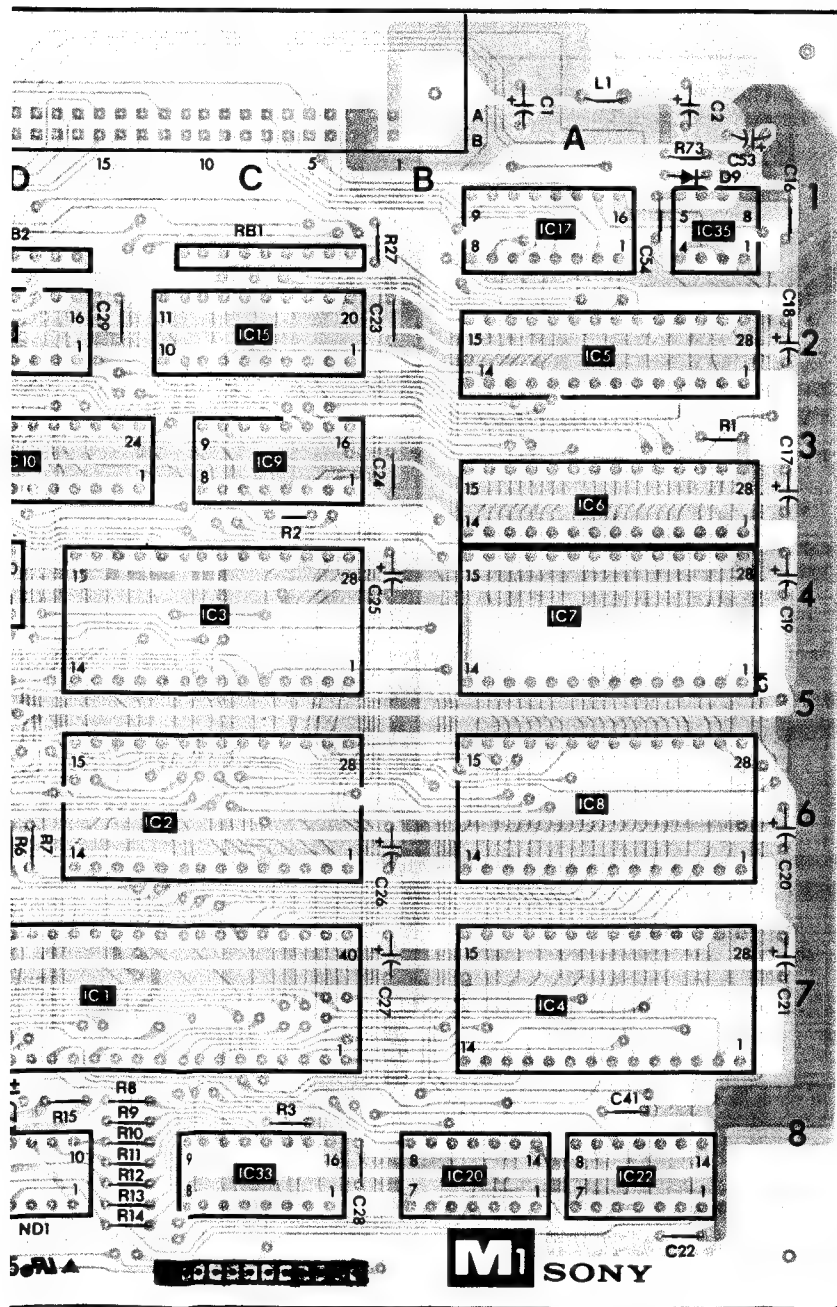
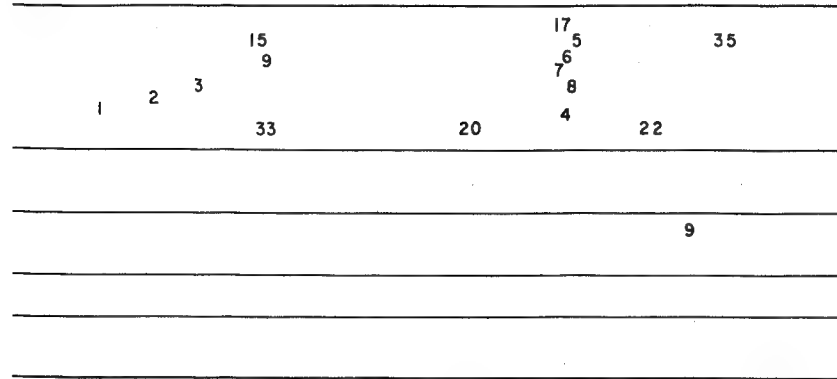




IC	42	41	26	31	30	16	15
	40		32	14	18	10	9
	38		29	27	19	11	3
	37				21		2
	36				12		
	43		28	34	24	25	33
Q	3	4	2				
D	5	4	3	2			
RV	8	7	6	10	12		
TP	0	6	5	4	3	2	



M1

1,003)
1,001)



-  : Pattern from the side witch enables seeing
-  : Pattern of the rear side.

M1 (CPU)

M1

M1

(CPU, C

—M1 BOARD— (DDM-2801C; Serial No. 2,000,006—2,000,039) (DDM-2801C2; Serial No. 2,000,004—2,000,049)
(DDM-2802C; Serial No. 2,000,001—2,000,015) (DDM-2802C2; Serial No. 2,002,001—2,000,006)

—M Board—

IC	
IC1	E-6
IC2	D-7
IC3	C-7
IC4	E-9
IC5	B-9
IC6	C-9
IC7	C-9
IC8	D-9
IC9	C-7
IC10	C-6
IC11	C-5
IC12	E-5
IC13	E-4
IC14	B-3
IC15	B-7
IC16	B-6
IC17	A-8
IC18	B-5
IC19	D-5
IC20	F-8
IC21	D-5
IC22	F-9
IC23	F-4
IC24	F-4
IC25	F-5
IC26	B-3
IC27	C-4
IC28	F-2
IC29	D-3
IC30	B-5
IC31	B-3
IC32	C-3
IC33	F-7
IC34	F-3
IC35	A-9
IC36	E-1
IC37	D-1
IC38	D-1
IC39	B-2
IC40	C-1
IC41	A-2
IC42	A-1
IC43	F-1

TRANSISTOR	
Q1	B-2
Q2	C-2
Q3	B-2
Q4	B-2

DIODE	
D1	F-4
D2	F-4
D3	C-2
D4	C-1
D5	C-1
D6	C-1
D7	C-1
D8	C-1
D9	A-9
D10	F-2
D11	E-2
D12	F-3

VARIABLE RESISTOR	
RV1	F-2

TESTPOINT	
TP0	F-1
TP1	E-3
TP2	F-4
TP3	A-2
TP4	A-2
TP5	A-2
TP6	A-2

—M1 BOA

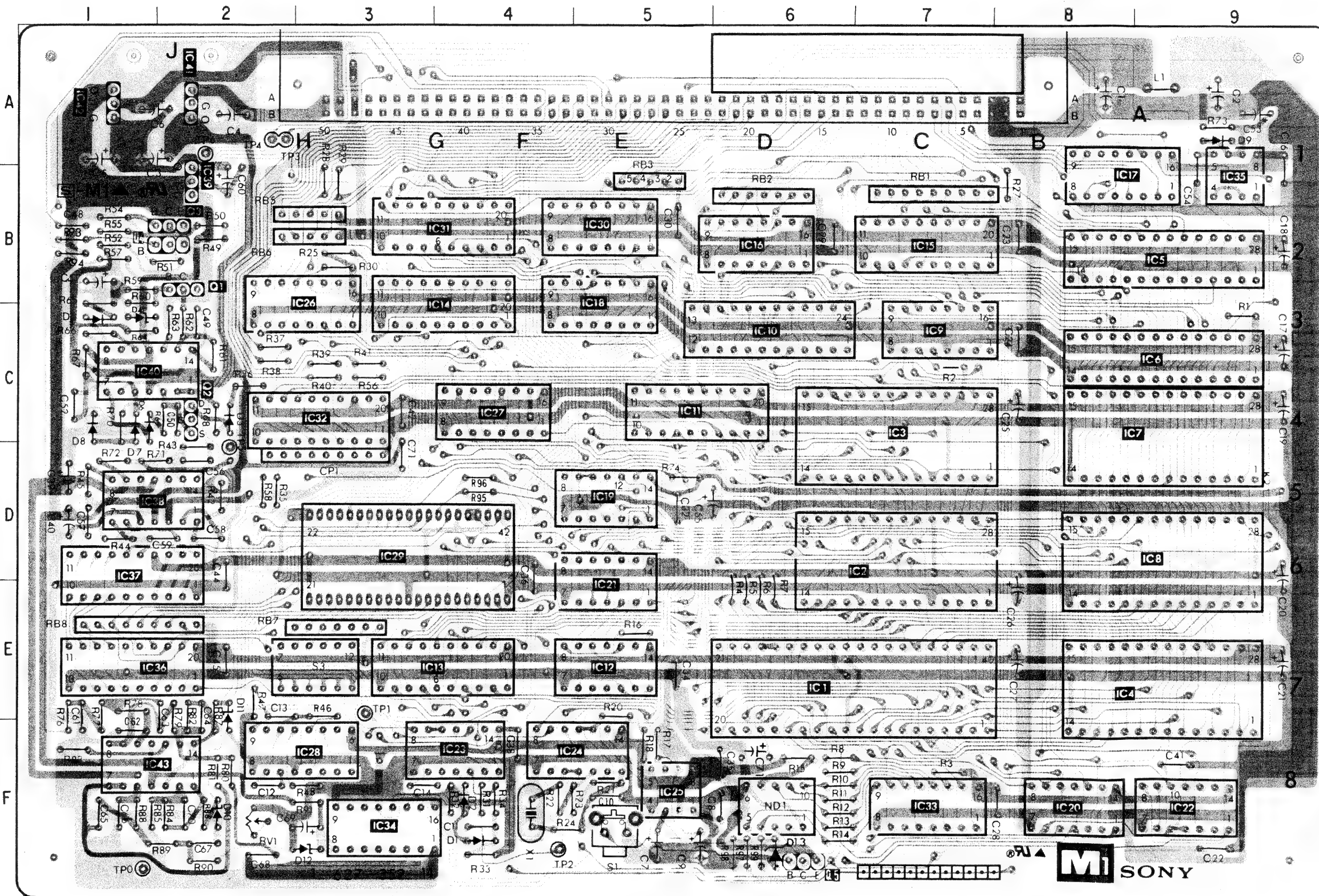
IC	
IC1	E-6
IC2	D-7
IC3	C-7
IC4	E-9
IC5	B-9
IC6	C-9
IC7	C-9
IC8	D-9
IC9	C-7
IC10	C-6
IC11	C-5
IC12	E-5
IC13	E-4
IC14	B-3
IC15	B-7
IC16	B-6
IC17	A-8
IC18	B-5
IC19	D-5
IC20	F-8
IC21	D-5
IC22	F-9
IC23	F-4
IC24	F-4
IC25	F-5
IC26	B-3
IC27	C-4
IC28	F-3
IC29	D-3
IC30	B-5
IC31	B-4
IC32	C-3
IC33	F-7
IC34	F-3
IC35	A-9
IC36	E-1
IC37	D-1
IC38	D-1
IC39	B-2
IC40	C-1
IC41	A-2
IC42	A-1
IC43	F-1

TRANSISTOR	
Q1	B-2
Q2	C-2
Q3	B-2
Q4	B-2
Q5	F-6

DIODE	
D1	F-4
D2	F-4
D3	C-2
D4	C-1
D5	C-1
D6	C-1
D7	C-1
D8	C-1
D9	A-9
D10	F-2
D11	E-2
D12	F-3
D13	F-6

VARIABLE RESISTOR	
RV1	F-2

TEST POINT	
TP0	F-1
TP1	F-3
TP2	F-4
TP3	A-2
TP4	A-2
TP5	D-2
TP6	A-2

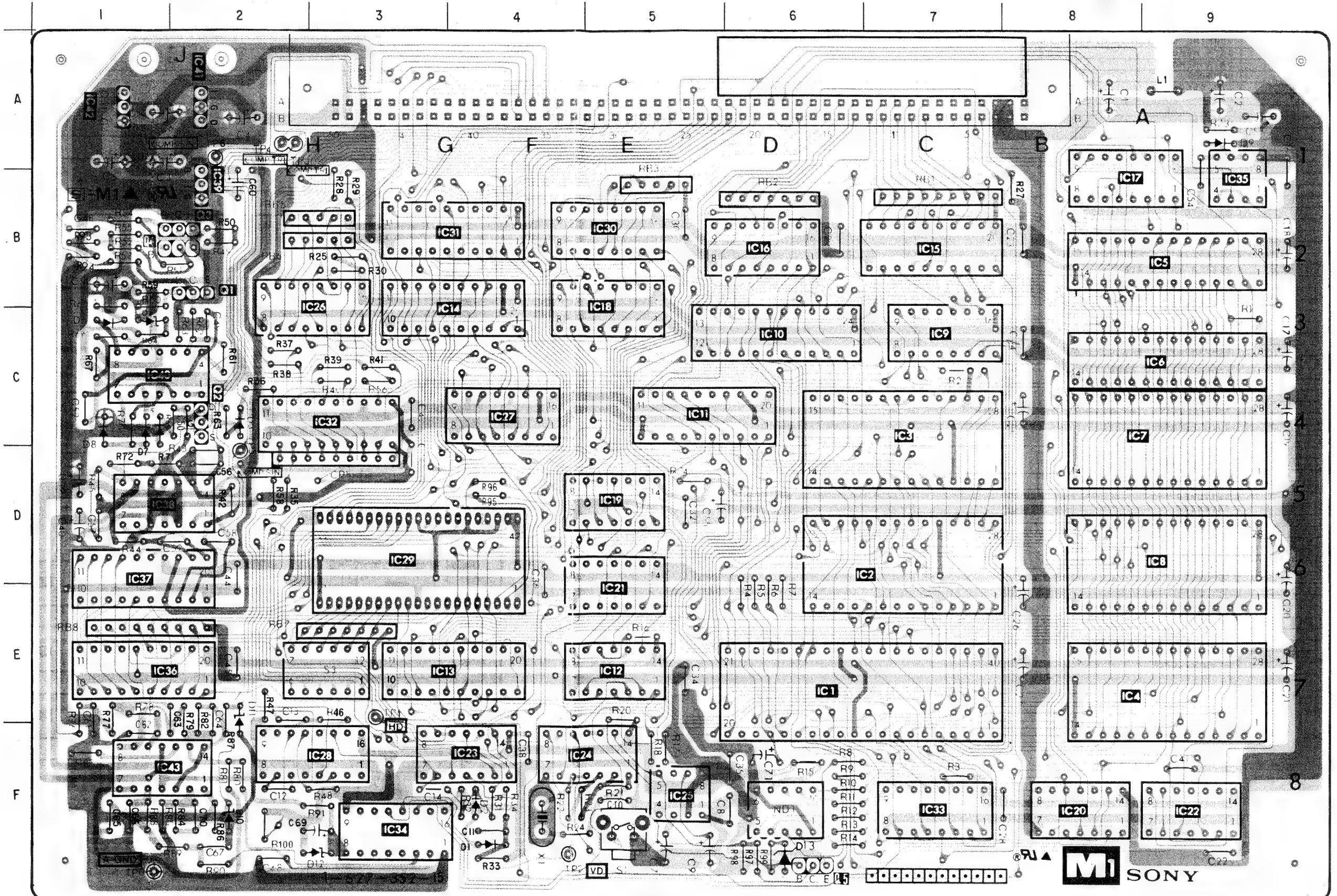


(CPU, CONTROL LOGIC)

—M1 BOARD— (DDM-2801C; Serial No. 2,000,006 and higher) (DDM-2801C2; Serial No. 2,000,004 and higher)
 (DDM-2802C; Serial No. 2,000,001 and higher) (DDM-2802C2; Serial No. 2,000,002 and higher)

—M1 BOARD—

IC	
IC1	E-6
IC2	D-7
IC3	C-7
IC4	E-9
IC5	B-9
IC6	C-9
IC7	C-9
IC8	D-9
IC9	C-7
IC10	C-6
IC11	C-5
IC12	E-5
IC13	E-4
IC14	B-3
IC15	B-7
IC16	B-6
IC17	A-8
IC18	B-5
IC19	D-5
IC20	F-8
IC21	E-5
IC22	F-9
IC23	F-4
IC24	F-4
IC25	F-5
IC26	B-3
IC27	C-4
IC28	F-3
IC29	D-3
IC30	B-5
IC31	B-4
IC32	C-3
IC33	F-7
IC34	F-3
IC35	A-9
IC36	E-1
IC37	D-1
IC38	D-1
IC39	B-2
IC40	C-1
IC41	A-2
IC42	A-1
IC43	F-1
TRANSISTOR	
Q1	B-2
Q2	C-2
Q3	B-2
Q4	B-2
Q5	F-6
DIODE	
D1	F-4
D2	F-4
D3	C-2
D4	C-1
D5	C-1
D6	C-1
D7	C-1
D8	C-1
D9	A-9
D10	F-2
D11	E-2
D12	F-3
D13	F-6
VARIABLE RESISTOR	
RV1	F-2
TEST POINT	
TP0	F-1
TP1	F-3
TP2	F-4
TP3	A-2
TP4	A-2
TP5	D-2
TP6	A-2

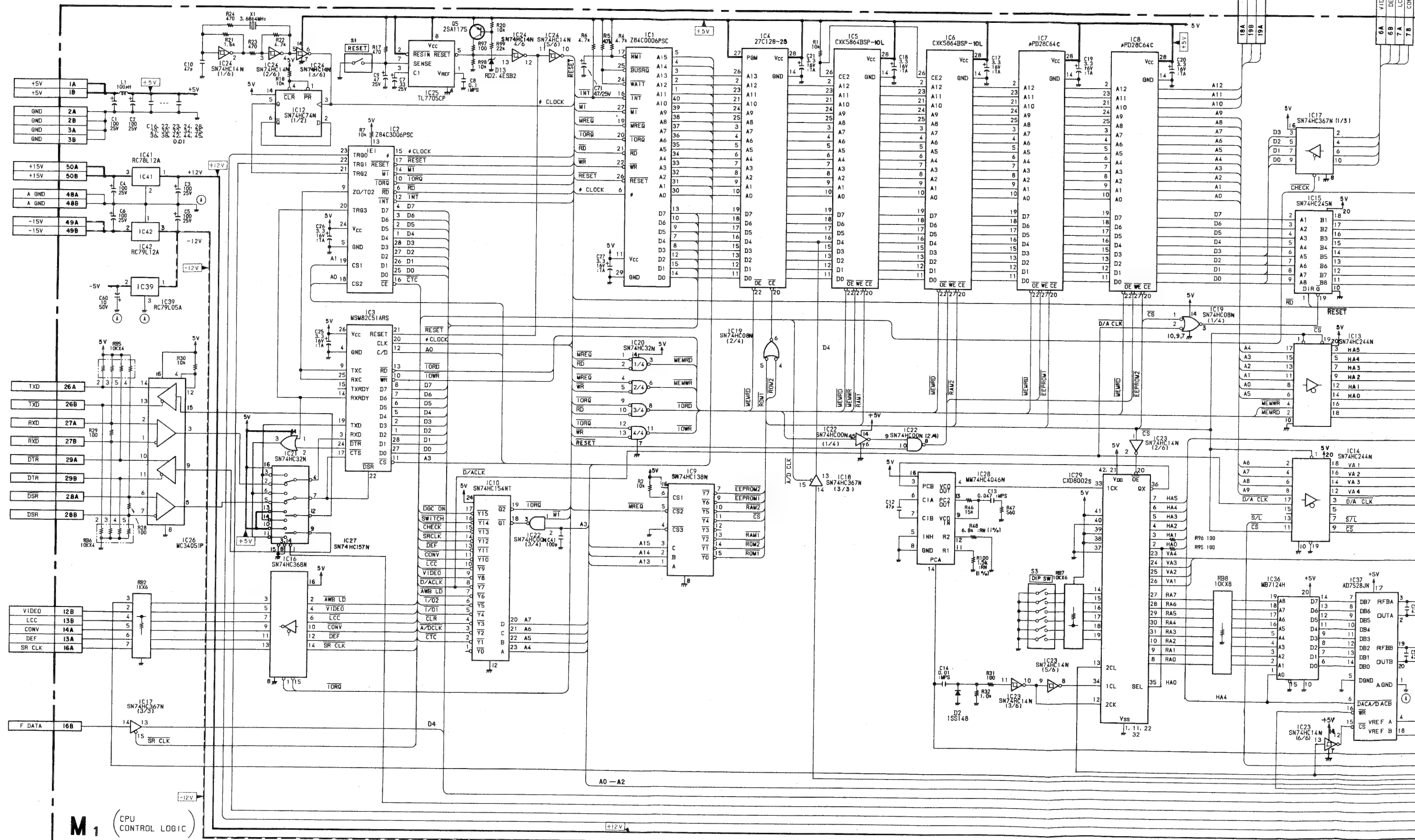


DDM-2801C/2802C
DDM-2801C2/2802C2

DDM-2801C/2802C
DDM-2801C2/2802C2

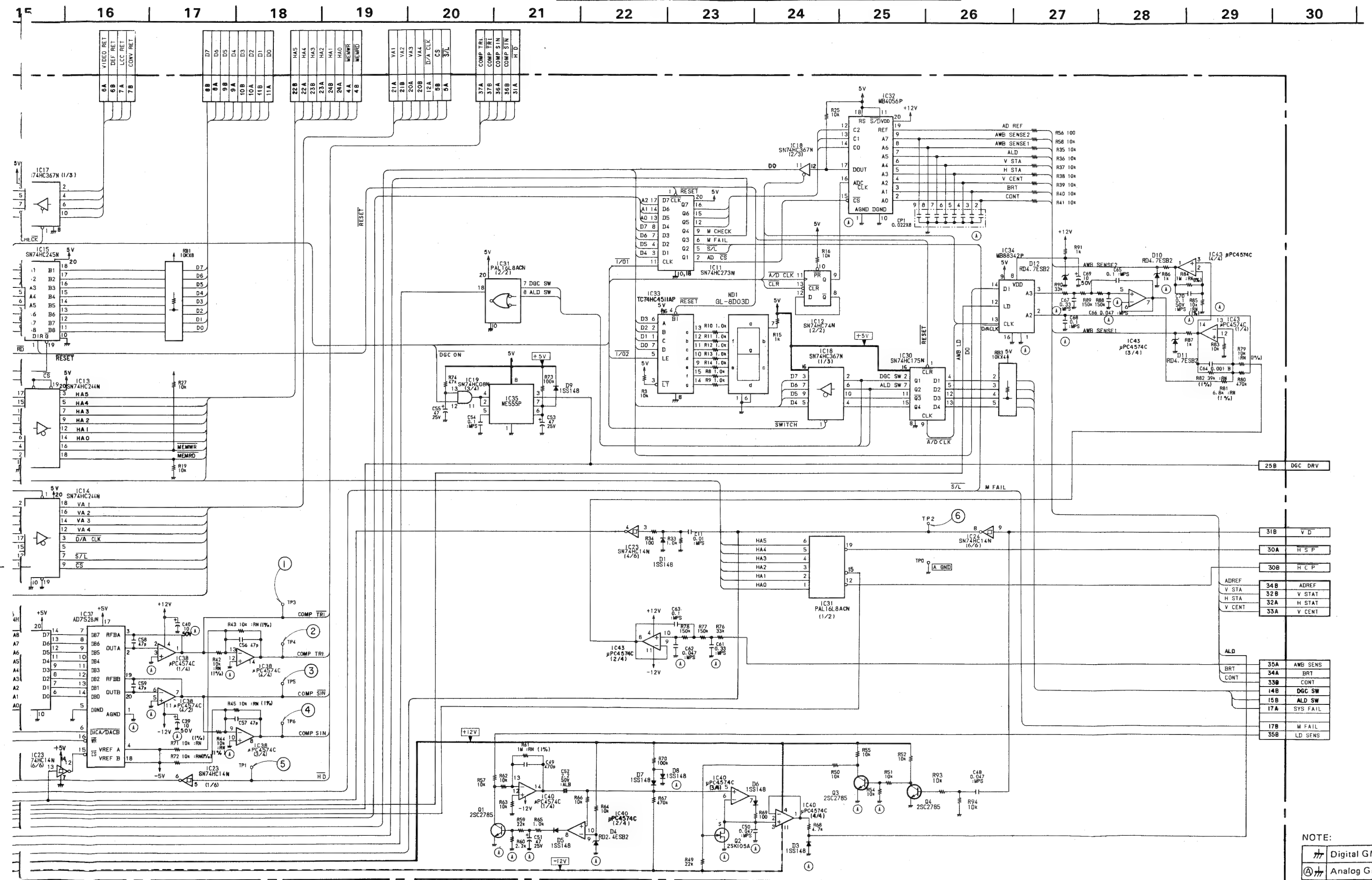
• M1 BOARD (DDM-2801C; Serial No. up-to 2,000,005) (DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C; Serial No. 10,001-10,003) (DDM-2802C2; Serial No. up-to 2,000,001)

A
B
C
D
E
F
G
H
I
J



DDM-2801C/2802C
DDM-2801C2/2802C2

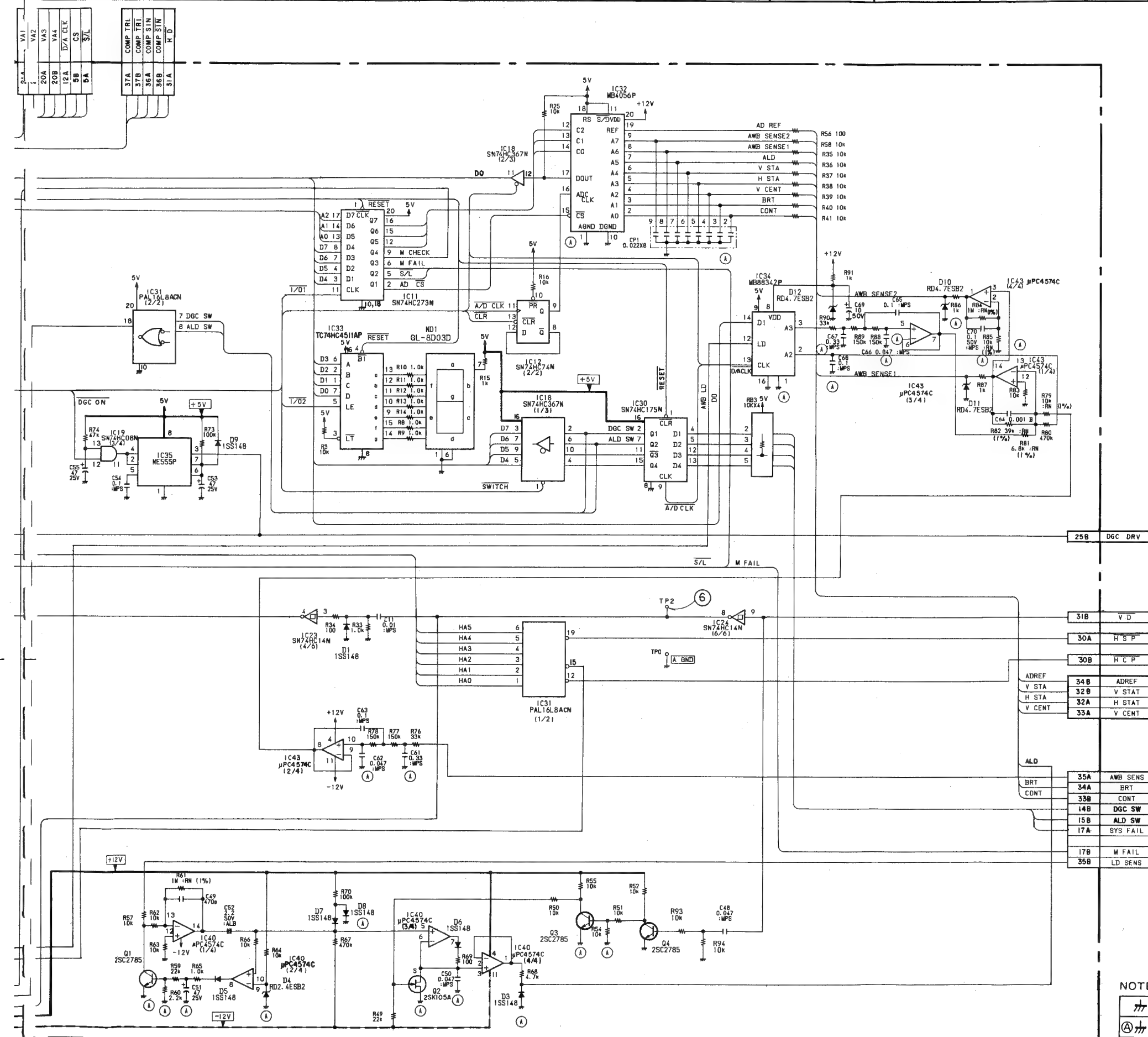
DDM-2801C/2802C
DDM-2801C2/2802C2



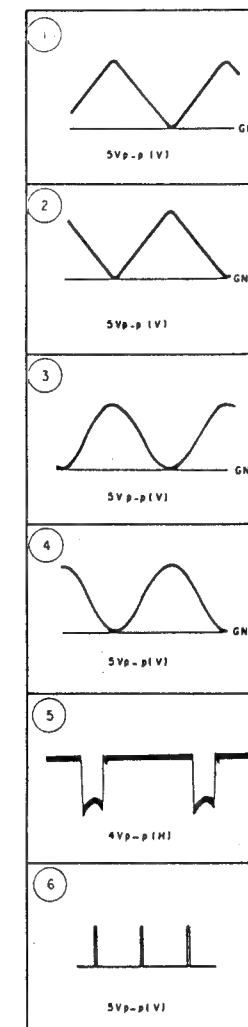
IC1	2
	3
	4
	5
	6
	7
	8
	9
	10
	11
	12
	13
	14
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	17
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	29
	30
	31
	32
	33
	34
	35
	36
	37
	38
	39
	40
	41
	42
	43
Q1	2
	3
	4
	5
D1	2
	3
	4
	5
	6
	7
	8
	9
	10
	11
	12
	13

NOTE:
 Digital GND
 Analog GND

20 21 22 23 24 25 26 27 28 29 30



IC1	280-CPU
2	280-CTC
3	USART
4	PROGRAM ROM
5	WORKING RAM
6	WORKING RAM
7	DATA MEMORY
8	DATA MEMORY
9	DECODER
10	I/O DECODER
11	LATCH
12	CLOCK GENE
13	BUFFER
14	BUFFER
15	BUFFER
16	LOAD PULSE GENE
17	BUFFER
18	BUFFER
19	AND GATE
20	OR GATE
21	OR GATE
22	NAND GATE
23	SCHMITT INV.
24	SCHMITT INV.
25	RESET IC
26	RS422 INTERFACE
27	DATA SELECTOR
28	PLL
29	ADDRESS COUNTER
30	STATUS HOLD
31	CLAMP PULSE GENE/GATE
32	A/D CONVERTER
33	SEQUENT DRIVER
34	D/A CONVERTER
35	DEGAUSS DRIVE GENE
36	COMPENSATION ROM
37	COMPENSATION WAVE GENE
38	QUAD OP AMP
39	-5V REG
40	QUAD OP AMP
41	12V REG
42	-12V REG
43	QUAD OP AMP
Q1	AGC
2	SWITCHER
3	INVERTER
4	INVERTER
5	SWITCHER
D1	PROTECT
2	PROTECT
3	PROTECT
4	REF VOLT
5	RECTIFIER
6	PEAK HOLD
7	CLAMPER
8	CLAMPER
9	DISCHARGE
10	4.7V LIMITTER
11	4.7V LIMITTER
12	4.7V REGULAT
13	ZENER DIODE

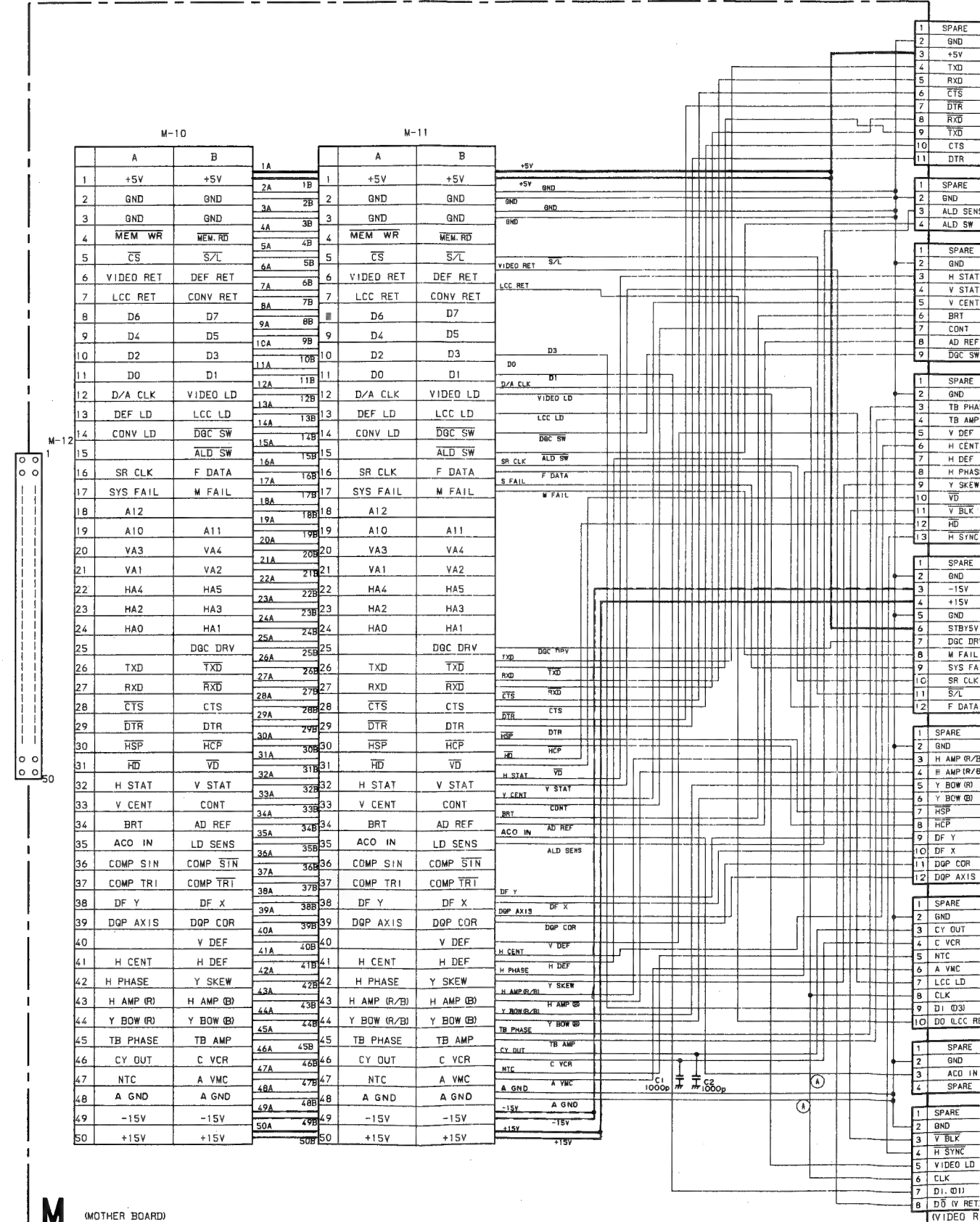
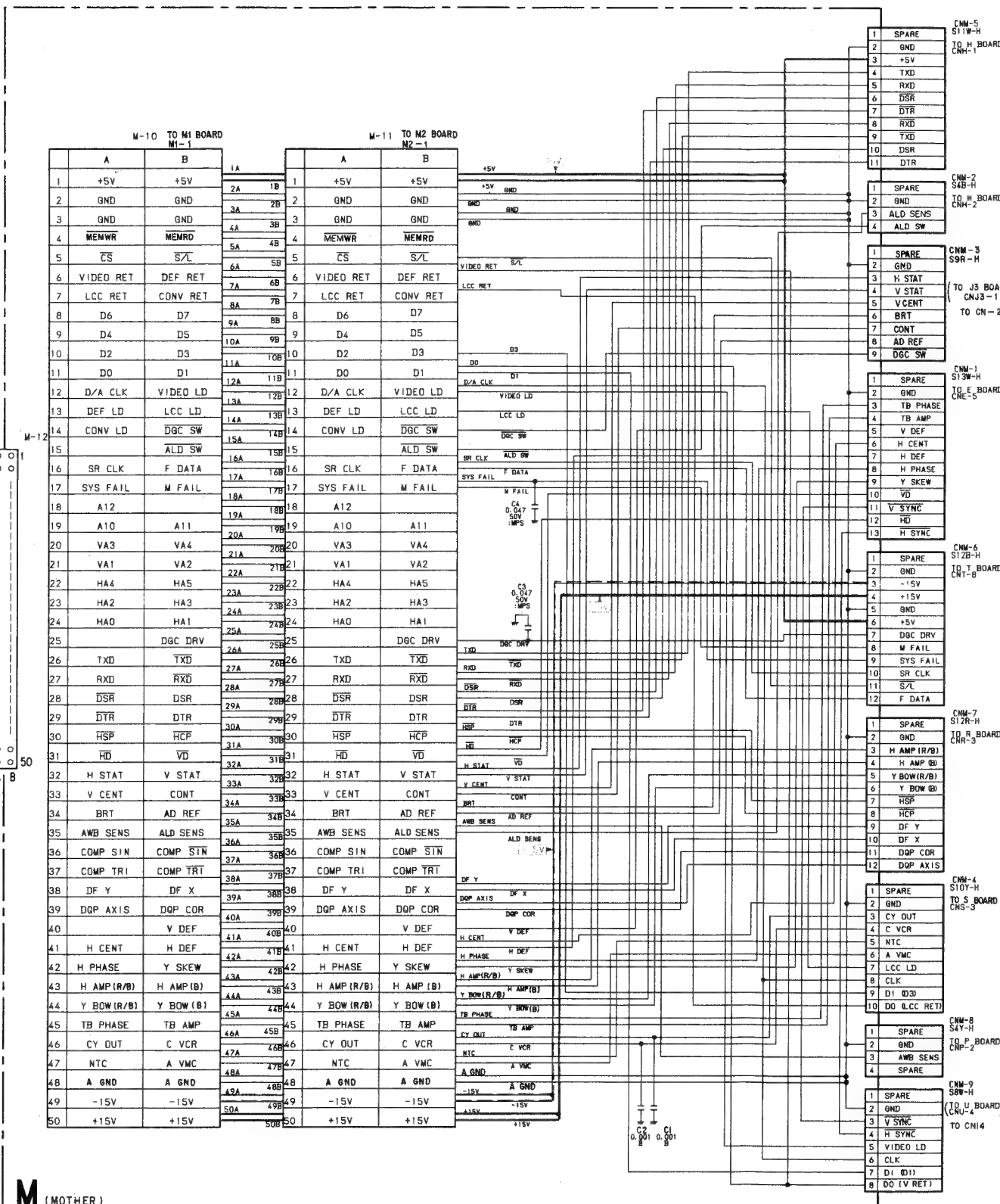


NOTE:

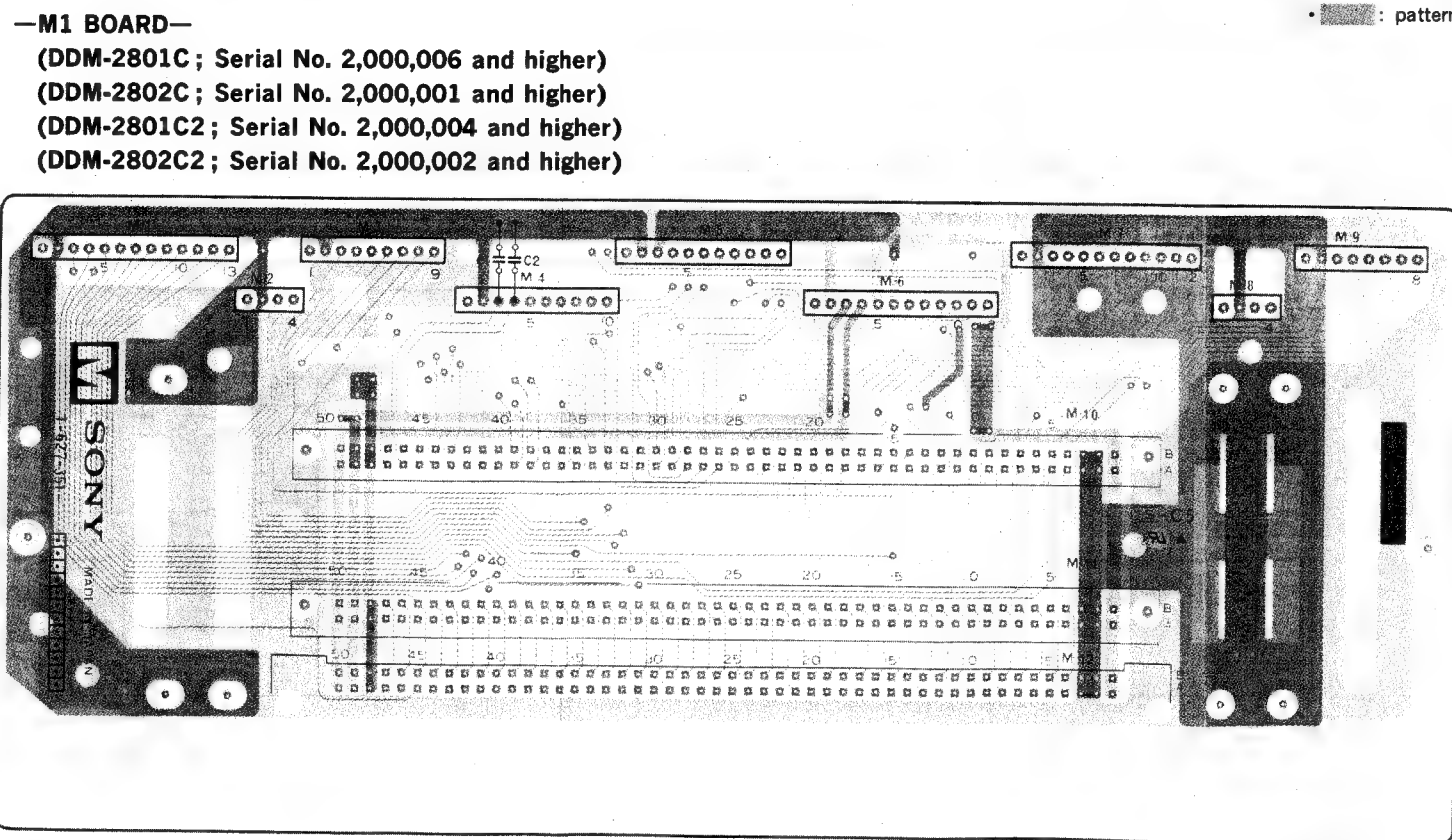
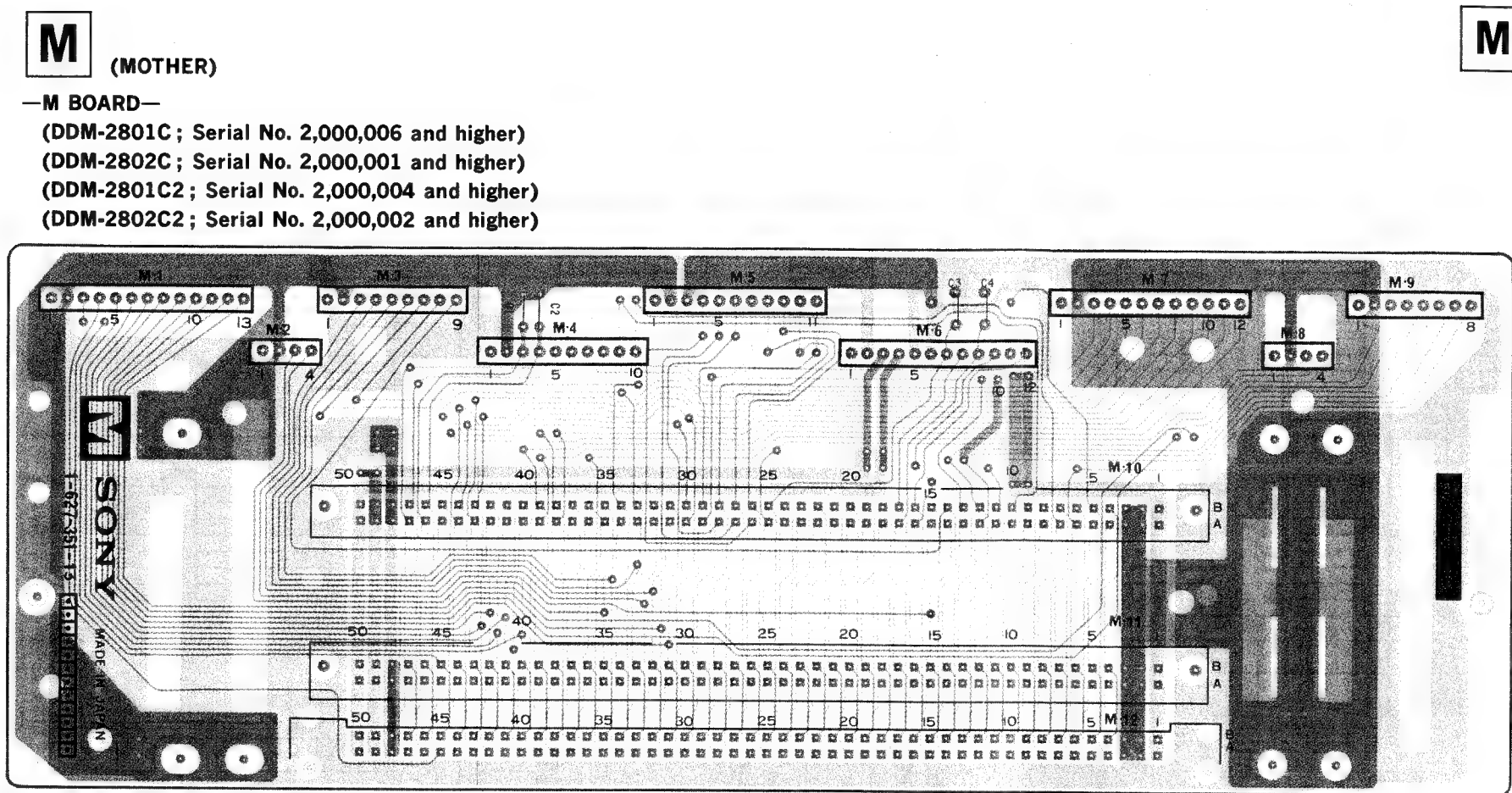
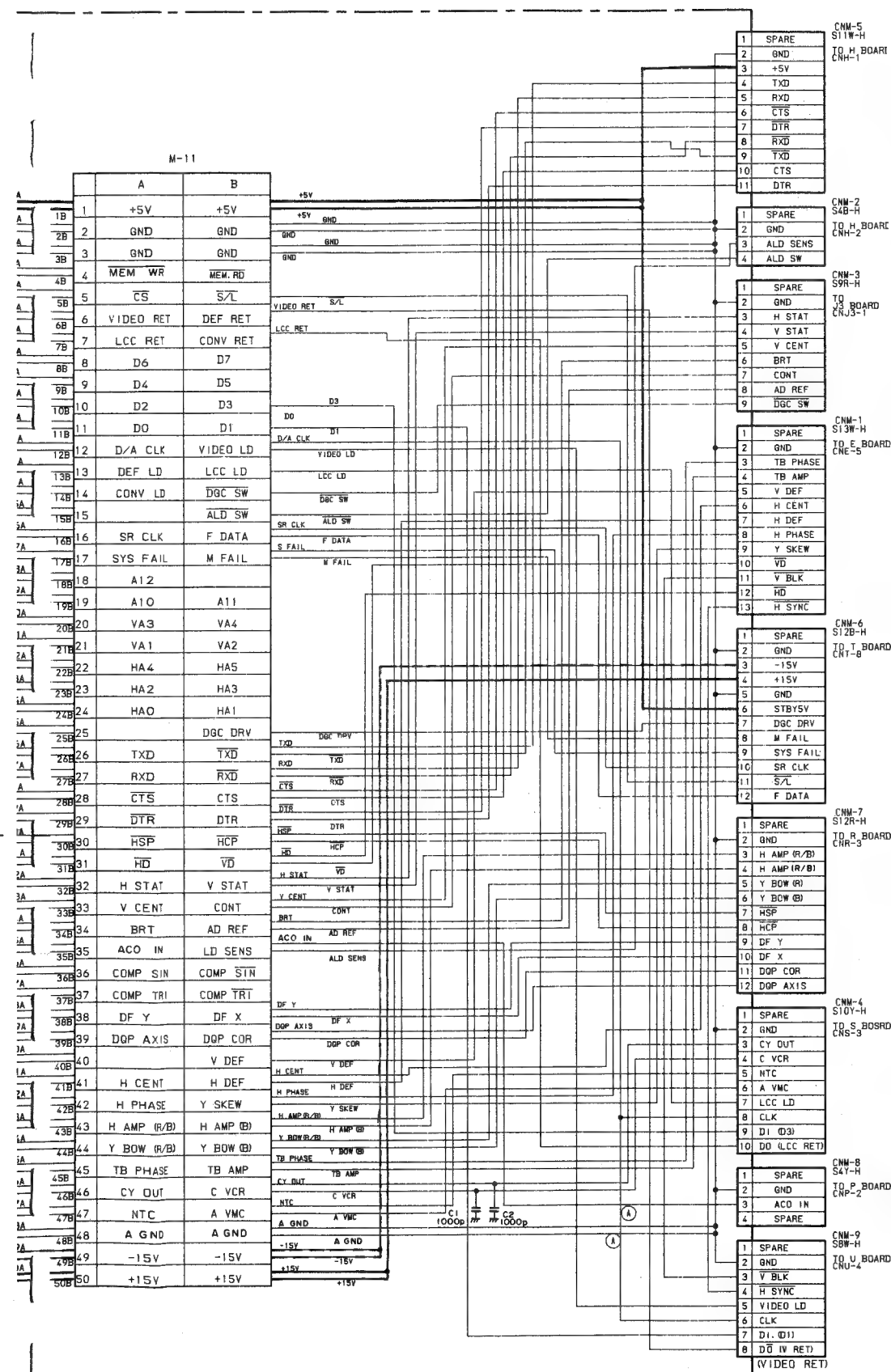
⎓ Digital GND
⎓ Analog GND

• M BOARD (DDM-2801C; Serial No. 2,000,006 and higher)
(DDM-2802C; Serial No. 2,000,001 and higher)
(DDM-2801C2; Serial No. 2,000,004 and higher)
(DDM-2802C2; Serial No. 2,000,002 and higher)

• M BOARD (DDM-2801C; Serial No. up-to 2,000,005)
(DDM-2802C; Serial No. 10,001-10,003)
(DDM-2801C2; Serial No. up-to 2,000,003)
(DDM-2802C2; Serial No. up-to 2,000,001)

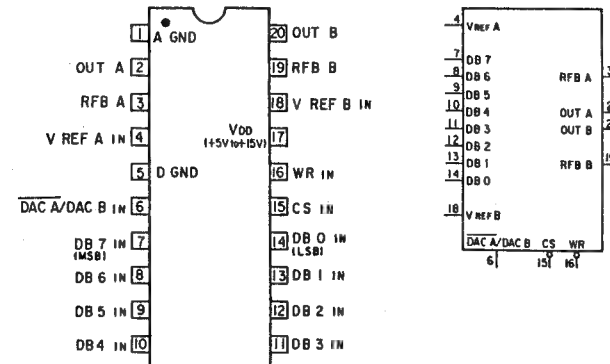


Serial No. up-to 2,000,005)
Serial No. 10,001—10,003)
Serial No. up-to 2,000,003)
Serial No. up-to 2,000,001)

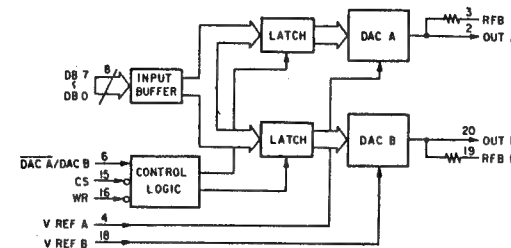


5-4. SEMICONDUCTORS

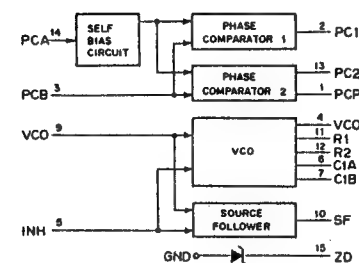
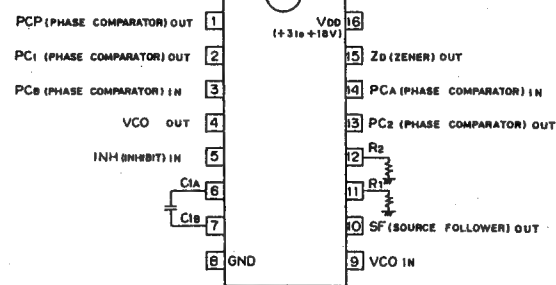
AD7528JN (ANALOG DEVICES)

C-MOS DUAL 8-BIT MULTIPLYING D/A CONVERTER WITH BUFFER
— TOP VIEW —

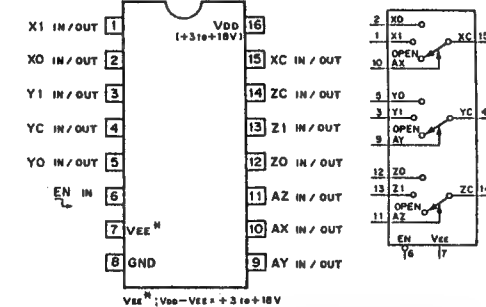
A GND : ANALOG GND
CS : CHIP SELECT INPUT
DAC A/DAC B : DAC SELECT INPUT
DB 7-DB 0 : DIGITAL DATA INPUTS
D GND : DIGITAL GND
OUT A, OUT B : ANALOG SIGNAL OUTPUT
RFB A, RFB B : REGISTER DAC FEEDBACK
V REF A, V REF B : REFERENCE VOLTAGE INPUT
WR : WRITE INPUT



CD4046BE (RCA)
HD14046BP (HITACHI)
MC14046BCP (MOTOROLA)
MC14046BF (MOTOROLA) FLAT PACKAGE
TC4046BP (TOSHIBA)
C-MOS PHASE LOCKED LOOP
— TOP VIEW —



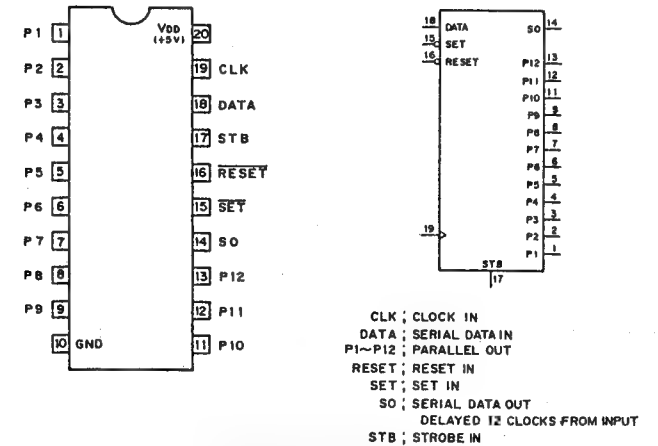
CD4053BE (RCA)
HD14053BP (HITACHI)
MB84053B (FUJITSU)
MC14053BCP (MOTOROLA)
MSM4053 (OKI)
TC4053BF (TOSHIBA) FLAT PACKAGE
TC4053BFH (TOSHIBA) FLAT PACKAGE
TC4053BP (TOSHIBA)
TC4053BPH (TOSHIBA)
UPD4053BC (NEC)
UPD4053BG (NEC) FLAT PACKAGE
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z)	
0	0	0
0	1	1
1	X	OPEN

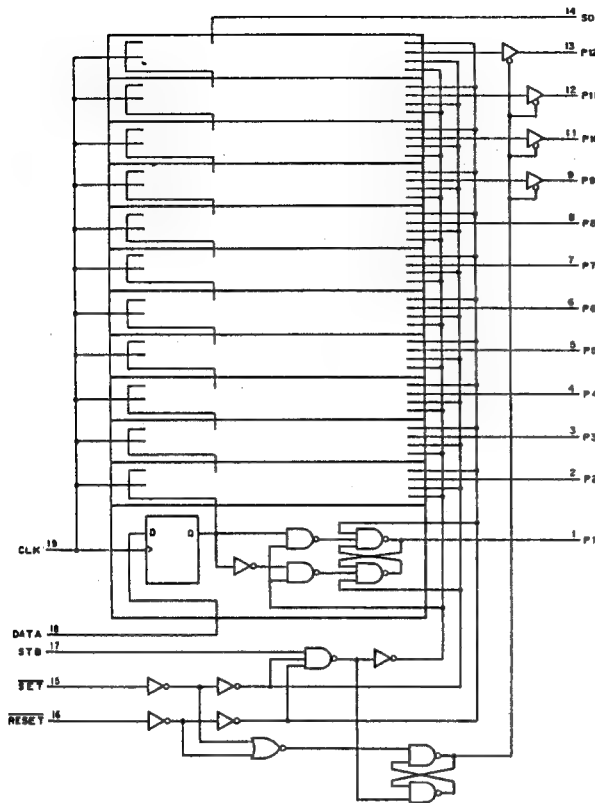
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

CXD1067P (SONY)
C-MOS 12-BIT SERIAL TO PARALLEL CONVERTER

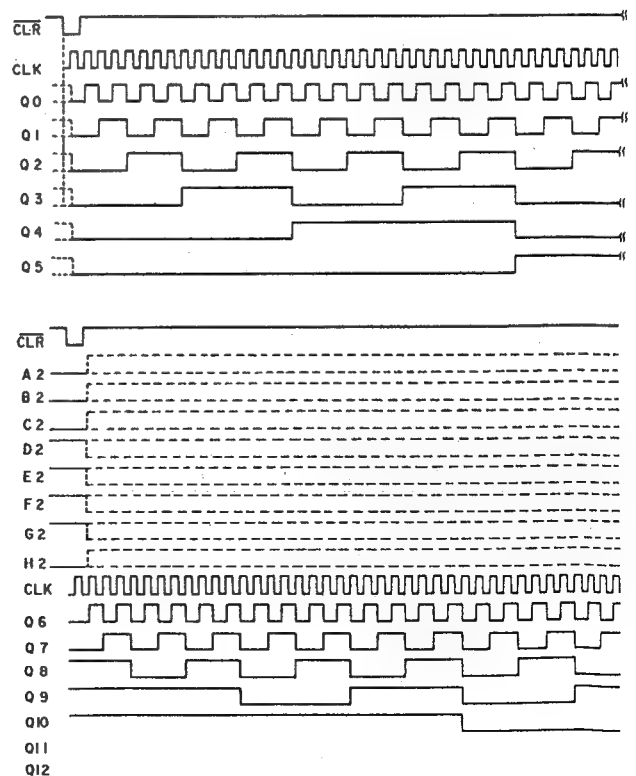
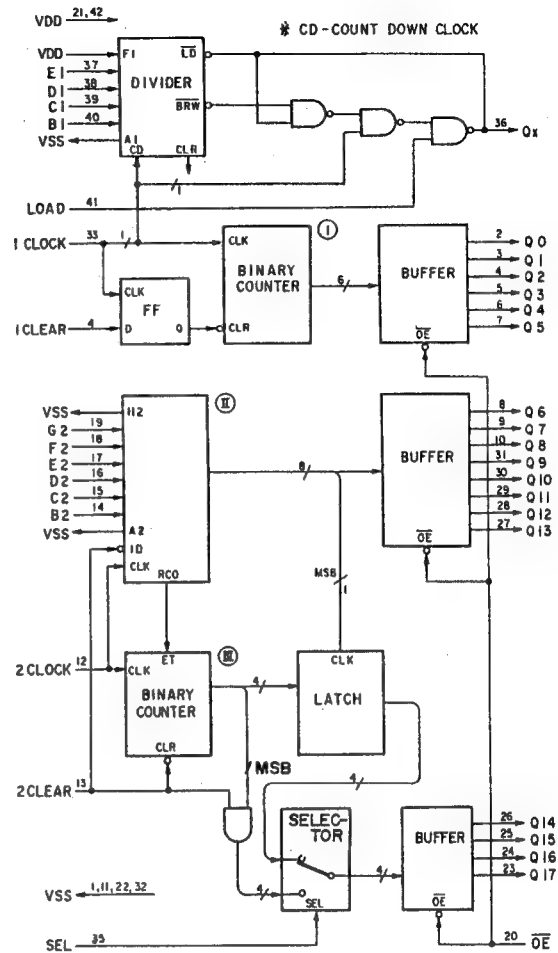
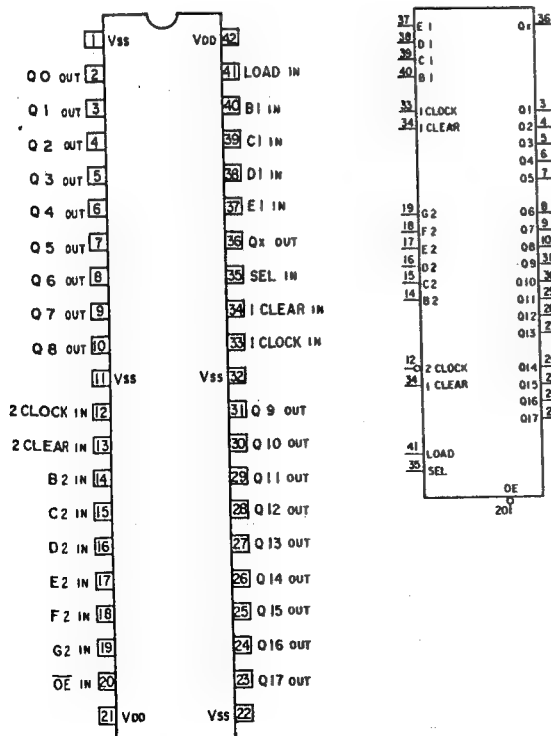


CONTROL INPUTS			PARALLEL OUTPUTS	
SET	RESET	STB	P1-P8	P9-P12
1	1	0	1	HI-Z
1	1	0	0	HI-Z
1	1	1	VALID	VALID
1	1	0	FORMER STATE	FORMER STATE

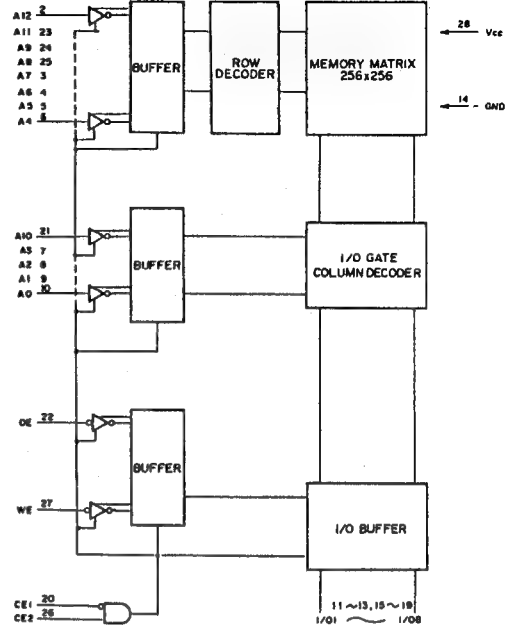
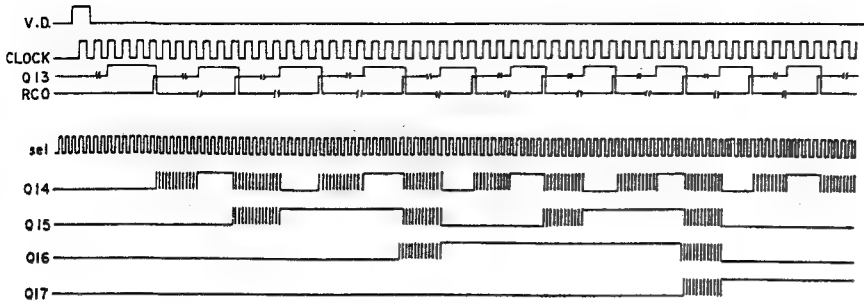
1; HIGH
0; LOW
HI-Z; HIGH IMPEDANCE



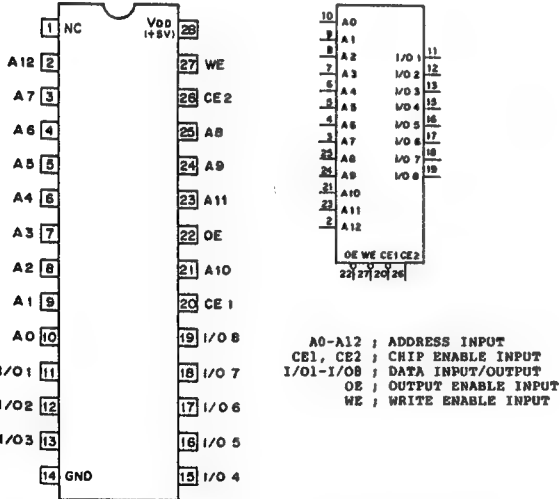
CXD8002S (SONY)
- TOP VIEW -



DDM-2801C/2802C
DDM-2801C2/2802C2



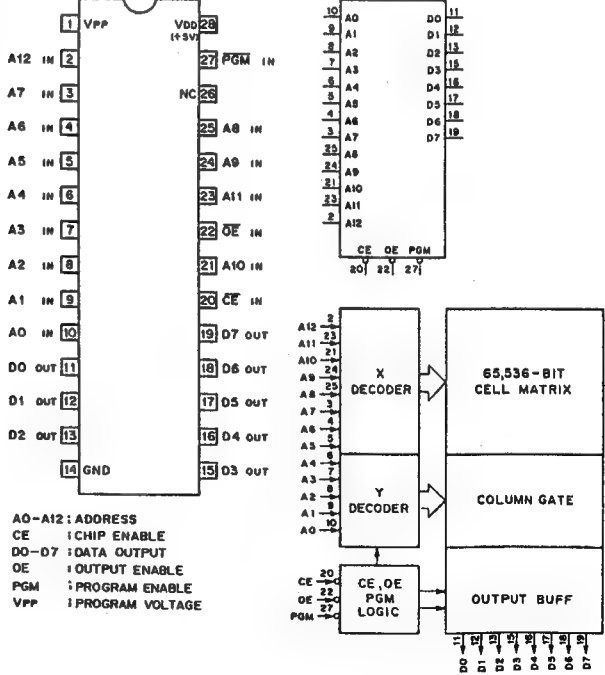
CXK5864ASP-10L (SONY) (ACCESS TIME = 100nS)
CXK5864ASP-70L (SONY) (ACCESS TIME = 70nS)
CXK5864BSP-10L (SONY) (ACCESS TIME = 100nS)
C-MOS 8192-WORDx8-BIT STATIC RAM
- TOP VIEW -



CE1	CE2	OE	WE	MODE	I/O TERMINAL
1	X	X	X	NOT SELECT	HIGH IMPEDANCE
X	0	X	X	NOT SELECT	HIGH IMPEDANCE
0	1	1	1	OUTPUT DISABLE	HIGH IMPEDANCE
0	1	0	1	READ	OUTPUT DATA
0	1	X	0	WRITE	INPUT DATA

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

HN27C64G-20 (HITACHI) (ACCESS TIME = 200 nS)
MBM27C64-20 (FUJITSU) (ACCESS TIME = 200 nS)
MBM27C64-25 (FUJITSU) (ACCESS TIME = 250 nS)
MBM27C64-30 (FUJITSU) (ACCESS TIME = 300 nS)
MSM27C64-25 (OKI) (ACCESS TIME = 250 nS)
C-MOS 64K (8K-B) ERASABLE PROM WITH 3-STATE OUTPUTS
- TOP VIEW -

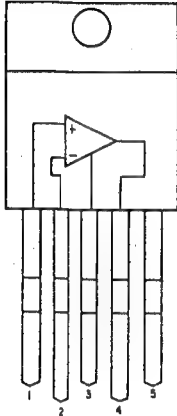


A0-A12: ADDRESS
CE: CHIP ENABLE
DO-D7: DATA OUTPUT
OE: OUTPUT ENABLE
PGM: PROGRAM ENABLE
VPP: PROGRAM VOLTAGE

An	CE	OE	PGM	Vpp	Dn	FUNCTION
An	0	0	1	+5V	D OUT	READ
An	0	1	1	+5V	HI-Z	OUTPUT DISABLE
An	0	0	0	+5V	HI-Z	OUTPUT DISABLE
X	1	X	X	+5V	HI-Z	STANDBY
An	0	X	1	+21V	Din	PGM
An	0	0	1	+21V	D OUT	PGM VERIFY
X	1	X	X	+21V	HI-Z	PGM INH

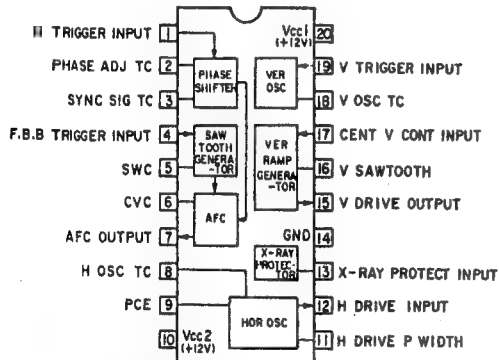
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z; HIGH IMPEDANCE

LA6500 (SANYO)
AF POWER AMP
- SIDE VIEW -



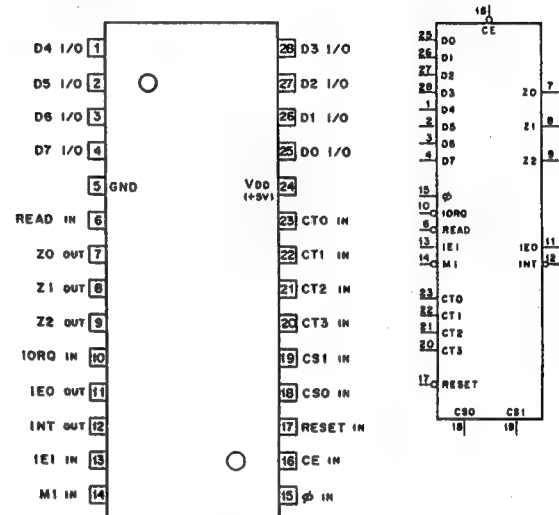
- 1: + INPUT
2: - INPUT
3: - VEE (-18V)
4: OUTPUT
5: Vcc (+18V)

LA7850 (SANYO)
CRT DISPLAY DEFLECTION SIGNAL PROCESSING
- TOP VIEW -



CVC: COMPARATOR VOLTAGE CAPACITOR
PCE: PEAK CURRENT EQUALIZER
SWC: SAWTOOTH WAVE CAPACITOR
TC: TIME CONSTANT

LH5082A (SHARP)
TMPZ84C30AP (TOSHIBA)
TMPZ84C30AP-8 (TOSHIBA)
Z84C3006PSC (ZILLOG)
Z84C30-6PS (ZILLOG)
C-MOS COUNTER TIMER CIRCUIT
- TOP VIEW -

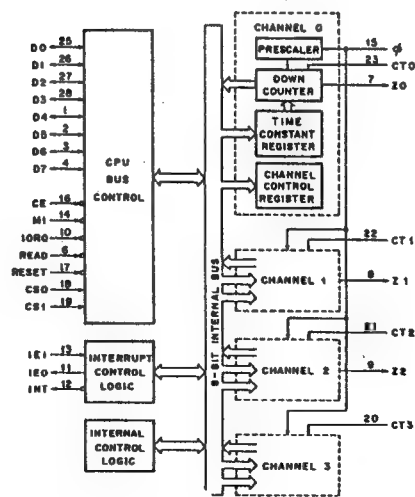


ϕ : SYSTEM CLOCK
CE: CHIP ENABLE
CS0, CS1: CHANNEL SELECT
CT0-CT3: EXTERNAL CLOCK/TIMER TRIGGER
DO-D7: 3-STATE DATA INPUT/OUTPUT
IEI: INTERRUPT ENABLE INPUT
IEO: INTERRUPT ENABLE OUTPUT
INT: INTERRUPT REQUEST (OPEN DRAIN)
IORQ: I/O REQUEST
M1: MACHINE CYCLE 1
READ: READ CYCLE STATUS
Z0-Z2: ZERO COUNT/TIME OUT

CHANNEL SELECT FUNCTION

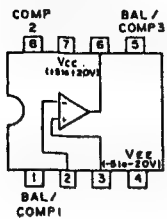
CS1	CS0	SELECTED CHANNEL
0	0	0
0	1	1
1	0	2
1	1	3

0: LOW LEVEL
1: HIGH LEVEL

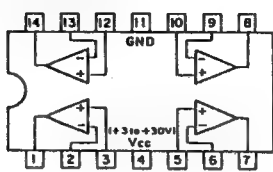


DDM-2801C/2802C
DDM-2801C2/2802C2

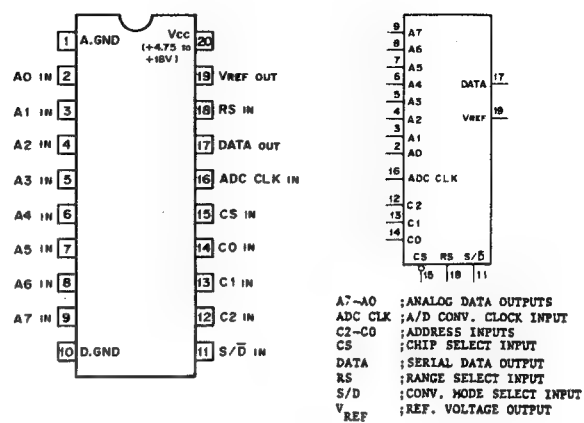
**LM318P (TI)
uPC318C (NEC)
HIGH-PERFORMANCE OPERATIONAL AMPLIFIER
— TOP VIEW —**



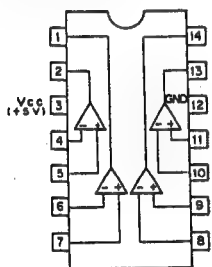
CA324 (RCA)
IR3702 (SHARP)
LM324 (NS)
LM324N (TI)
M83614 (FUJITSU)
μPC324C (NEC)
μPC324G2 (NEC) FLAT PACKAGE
QUAD. OP AMPLIFIER
— TOP VIEW —



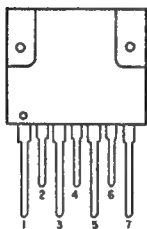
MB4056 (FUJITSU)
8-BIT A/D CONVERTER
- TOP VIEW -



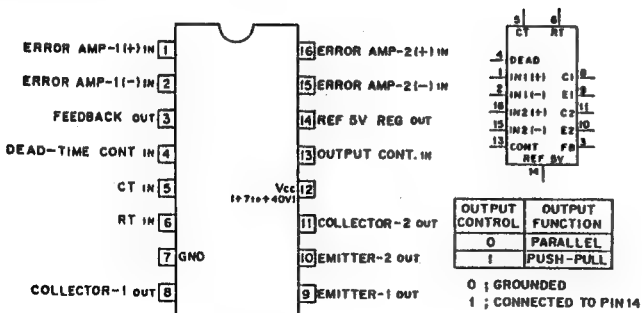
LM339 (NSC)
MB4204 (FUJITSU)
uPC339C (NEC)
uPC339G2 (NEC) FLAT PACKAGE
COMPARATOR
— TOP VIEW —



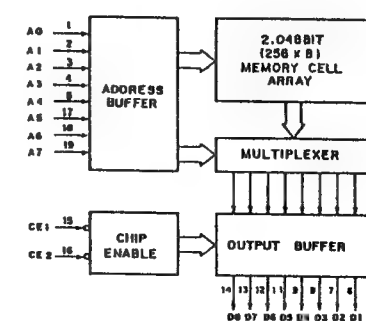
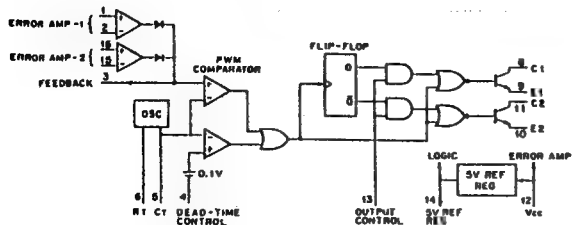
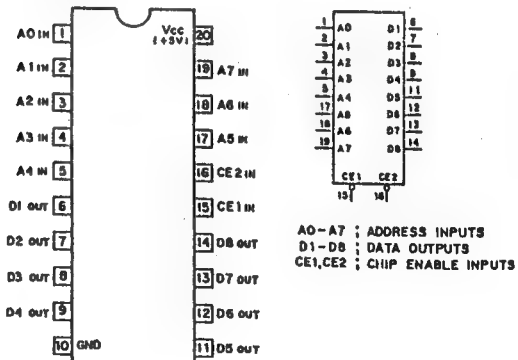
MA1050 (SHINDENGEN)
POWER SUPPLIES
- FRONT VIEW -



MB3759 (FUJITSU)
MB3769P (FUJITSU)
TL494CN (TI)
TL494CNS (TI) FLAT PACKAGE
uPC494C (NEC)
PWM POWER CONTROL
— TOP VIEW —

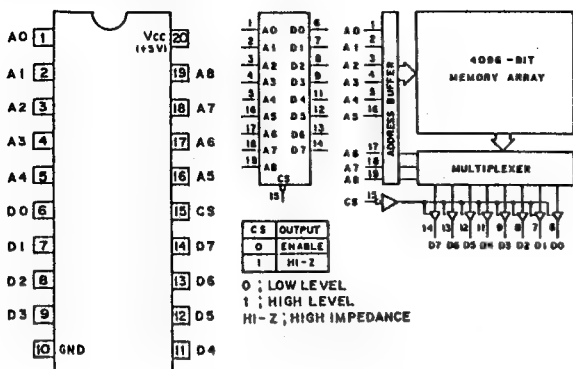


MB7110E (FUJITSU) (ACCESS TIME = 45ns)
MB7110H (FUJITSU) (ACCESS TIME = 35ns)
2048-BIT (256x8) PROM
— TOP VIEW —



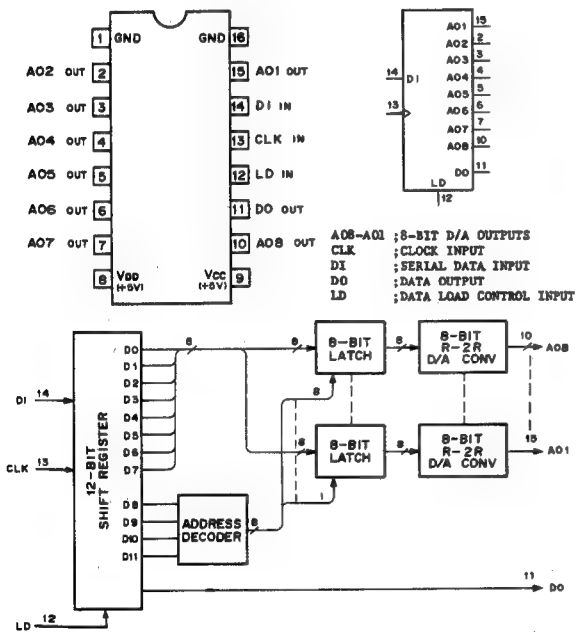
DDM-2801C/2802C
DDM-2801C2/2802C2

MB7124 (FUJITSU)
MB7124EZ (FUJITSU)
MB7124HZ (FUJITSU)
4096-BIT (512x8) PROM WITH 3-STATE OUTPUT
— TOP VIEW —

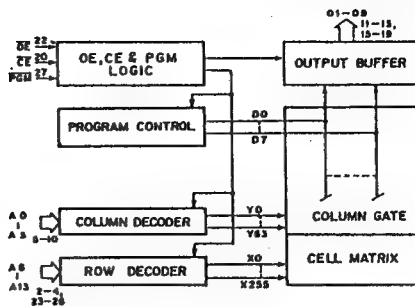
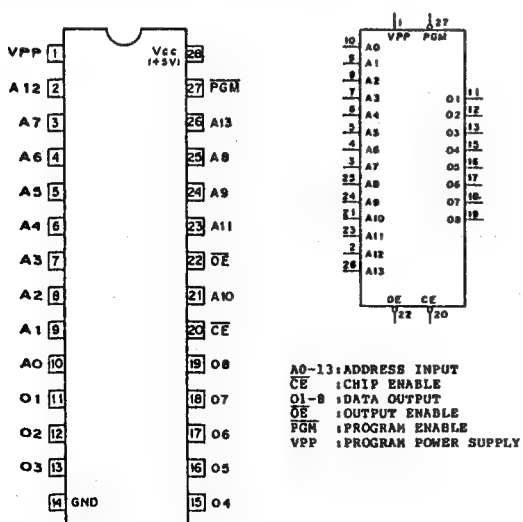


AO - A8; ADDRESS INPUTS
D0 - D7; DATA OUTPUTS
CS; CHIP SELECT INPUT

MB88342 (FUJITSU)
C-MOS 8-BIT D/A CONVERTER
- TOP VIEW -



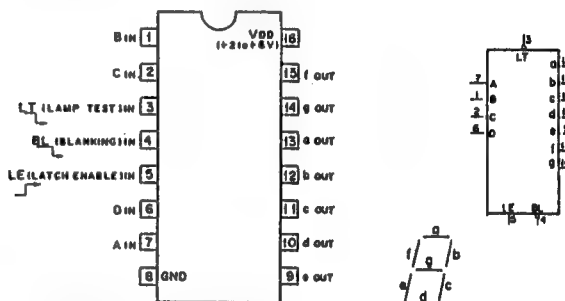
MBM27C128-20 (FUJITSU) (ACCESS TIME = 200nS)
MBM27C128-25 (FUJITSU) (ACCESS TIME = 250nS)
CMOS 131,072-BIT EPROM
- TOP VIEW -



MODE	TERMINAL	DATA OUTPUT	CE	OE	PGH	VPP
READ		DATA OUT	0	0	1	+5V
OUTPUT DISABLE		HIGH IMPEDANCE	0	1	1	+5V
OUTPUT DISABLE		HIGH IMPEDANCE	0	0	0	+5V
STANDBY		HIGH IMPEDANCE	1	X	X	+5V
PROGRAM		DATA IN	0	1	0	+21V
PROGRAM VERIFY		DATA OUT	0	0	1	+21V
PROGRAM INHIBIT		HIGH IMPEDANCE	1	X	X	+21V

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE

MC145118CP (MOTOROLA)
TC45118P (TOSHIBA)
TC74HC4511F (TOSHIBA) FLAT PACKAGE
TC74HC4511P (TOSHIBA)
TP45118N (TI)
C-MOS 8CD TO 7 SEGMENT LATCH/DECODER/DRIVER
— TOP VIEW —



INPUTS							OUTPUTS								DISPLAY
LE	BL	LT	D	C	B	A	a	b	c	d	e	f	g		
X	X	0	1	X	X	X	X	X	0	1	1	1	1	1	0
X	0	1	1	X	X	X	X	0	0	0	0	0	0	0	0
0	1	1	0	0	0	0	0	1	1	1	1	1	1	0	0
0	1	1	0	0	0	1	0	1	1	1	1	1	1	0	0
0	1	1	0	0	1	0	0	1	1	1	1	1	1	0	0
0	1	1	0	1	0	0	0	1	1	1	1	1	1	0	0
0	1	1	0	1	0	1	0	1	1	1	1	1	1	0	0
0	1	1	0	1	1	0	0	1	1	1	1	1	1	0	0
0	1	1	0	1	1	0	1	1	1	1	1	1	1	0	0
0	1	1	0	1	1	1	0	1	1	1	1	1	1	0	0
0	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0
0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0
0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
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0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
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0	1	1	0	1	1	1	1	1							

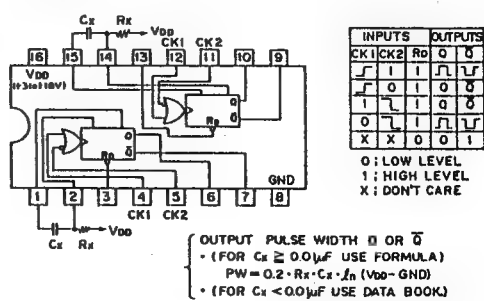
```

0; LOW
1; HIGH
X; LOW OR HIGH

```

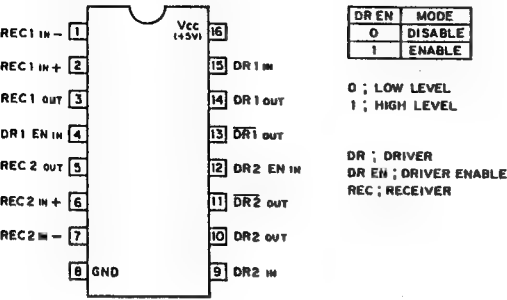
★:DEPEND UPON THE BCD CODE
PREVIOUSLY APPLIED WHEN LE = 0.

F4528BPC (FSC)
M4528BP (MITSUBISHI)
MC14528BCP (MOTOROLA)
TC4528BF (TOSHIBA) FLAT PACKAGE
TC4528BFH (TOSHIBA) FLAT PACKAGE
TC4528BP (TOSHIBA)
TC4528BPH (TOSHIBA)
uPD4528B (NEC)
uPD4528B (NEC)
C-MOS RETRIGGERABLE/RESETTABLE MMV
— TOP VIEW —

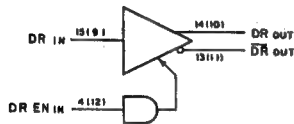


DDM-2801C/2802C
DDM-2801C2/2802C2

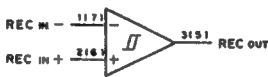
MC34051P (MOTOROLA)
RS-422 DRIVER/RECEIVER
— TOP VIEW —



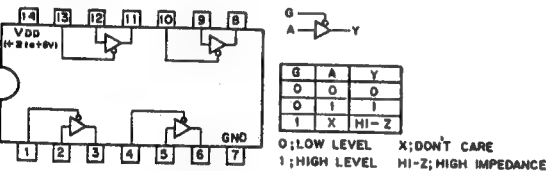
DRIVER CIRCUIT



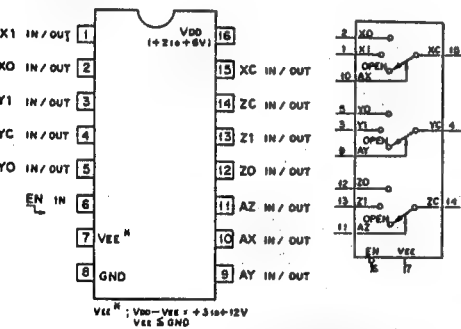
RECEIVER CIRCUIT



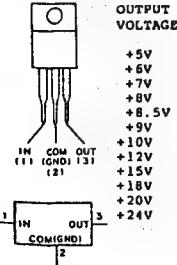
HD74HC125P (HITACHI)
MC74HC125N (MOTOROLA)
SN74HC125N (TI)
TC74HC125P (TOSHIBA)
uPD74HC125C (NEC)
C-MOS BUS BUFFER GATES WITH 3-STATE OUTPUT
— TOP VIEW —



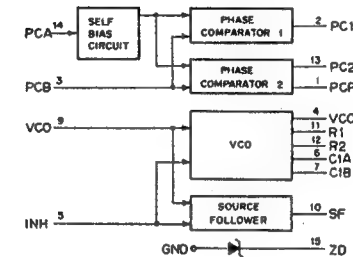
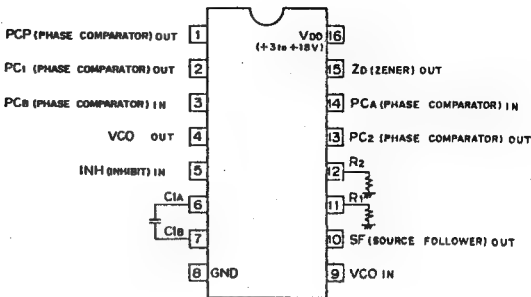
MC74HC4053N (MOTOROLA)
TC74HC4053P (TOSHIBA)
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



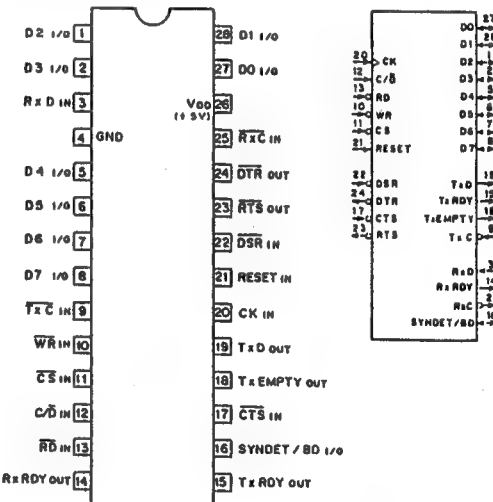
MC78 7 2CT (MOTOROLA)
POSITIVE VOLTAGE REGULATOR (1A)
— SIDE VIEW —



MM74HC4046 (NSC)
C-MOS PHASE LOCKED LOOP
— TOP VIEW —



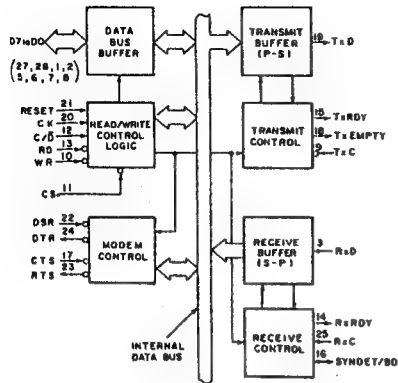
uPD71061C (NEC)
MSM82C41ARS (OKI)
C-MOS PROGRAMMABLE COMMUNICATION INTERFACE
— TOP VIEW —



OPERATION WITH CPU

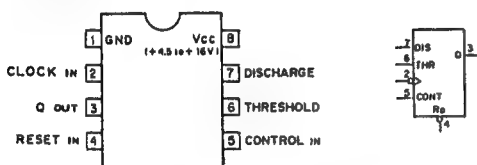
CS	C/D	RD	WR	FUNCTION
1	X	X	X	DATA BUS 3-STATE
0	X	1	1	DATA BUS 3-STATE
0	1	0	1	STATUS TO CPU
0	1	1	0	CONTROL WORD FROM CPU
0	0	0	1	DATA TO CPU
0	0	1	0	DATA FROM CPU

1 ; HIGH LEVEL
0 ; LOW LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

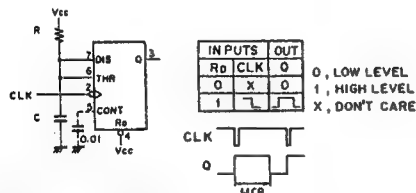


CK; CLOCK SIGNAL
CS; CHIP ENABLE
CTS; CLEAR TO SEND DATA
C/D; DATA, COMMAND WORD or STATUS WORD IS TO BE WRITTEN or READ
D0 TO D7; DATA
DSR; DATA SET READY
DTR; DATA TERMINAL READY
RD; READ DATA or STATUS WORD
RESET; RESET BY HIGH LEVEL
RTS; REQUEST TO SEND DATA
RxC; RECEIVING CLOCK
RxD; RECEIVING DATA
RxDY; RECEIVING READY
SYNCDET/BD; SYNC DETECT/BREAK DETECT
TxC; TRANSMITTING CLOCK
TxD; TRANSMITTING DATA
TxEMPTY; TRANSMITTING CHARACTER EMPTY
TxRDY; TRANSMITTING READY
WR; WRITE DATA or CONTROL WORD

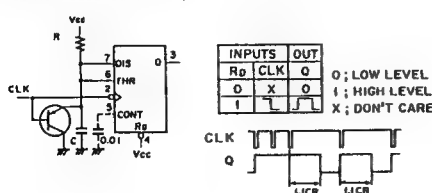
HA17555GS (HITACHI)
HA17555PS (HITACHI)
M51841P (MITSUBISHI)
NE555N (SIGNETICS)
NJM555D (JRC)
TL1555P (TI)
uPC1555C (NEC)
PRECISION TIMER
— TOP VIEW —



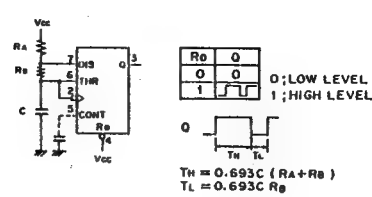
MONOSTABLE MULTIVIBRATOR



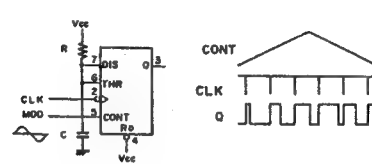
RETRIGGERABLE MONO. MULTIVIBRATOR
(MISSING PULSE DETECTOR)



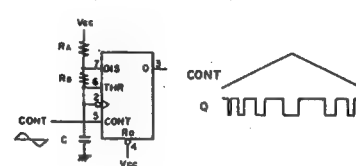
ASTABLE MULTIVIBRATOR



PULSE WIDTH MODULATOR



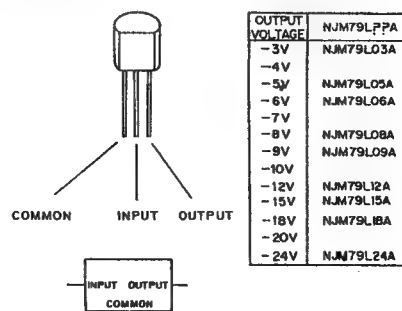
VCO
(PULSE POSITION MODULATOR)



AN78L?? (MATSUSHITA)
NJM78L??A (NEC)
uA78L??ACL (TI)
uA78L??AWV (FSC)
uPC78L??J (NEC)
POSITIVE VOLTAGE REGULATOR (100mA)

OUTPUT VOLTAGE	NJM78L??A	uA78L??ACL	uA78L??AWV	uPC78L??J	AN78L??
+2.6V	NJM78L02A	uA78L02ACL	uA78L26AWV	-----	-----
+4V	NJM78L05A	uA78L05ACL	uA78L05AWV	uPC78L05J	AN78L04
+5V	NJM78L06A	uA78L06ACL	uA78L06AWV	-----	AN78L05
+6V	NJM78L08A	uA78L08ACL	uA78L08AWV	-----	AN78L06
+6.2V	NJM78L09A	uA78L09ACL	uA78L09AWV	-----	-----
+7V	NJM78L10A	uA78L10ACL	uA78L10AWV	uPC78L10J	AN78L07
+8V	NJM78L12A	uA78L12ACL	uA78L12AWV	uPC78L12J	AN78L08
+8.2V	NJM78L15A	uA78L15ACL	uA78L15AWV	uPC78L15J	AN78L09
+9V	NJM78L18A	uA78L18ACL	uA78L18AWV	-----	AN78L10
+10V	NJM78L20A	uA78L20ACL	uA78L20AWV	-----	AN78L11
+12V	NJM78L24A	uA78L24ACL	uA78L24AWV	-----	AN78L12
+15V	NJM78L26A	uA78L26ACL	uA78L26AWV	-----	AN78L13
+18V	NJM78L28A	uA78L28ACL	uA78L28AWV	-----	AN78L14
+20V	NJM78L30A	uA78L30ACL	uA78L30AWV	-----	AN78L15
+24V	NJM78L36A	uA78L36ACL	uA78L36AWV	-----	AN78L16

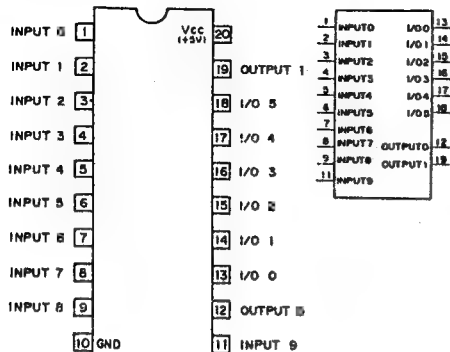
NJM78L??A (JRC)
NEGATIVE VOLTAGE REGULATOR (100mA)
— FRONT VIEW —



OUTPUT VOLTAGE	NJM78L??A
-3V	NJM78L03A
-4V	NJM78L04A
-5V	NJM78L05A
-6V	NJM78L06A
-7V	NJM78L07A
-8V	NJM78L08A
-9V	NJM78L09A
-10V	NJM78L10A
-12V	NJM78L12A
-15V	NJM78L15A
-18V	NJM78L18A
-20V	NJM78L20A
-24V	NJM78L24A

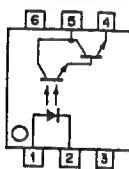
DDM-2801C/2802C DDM-2801C2/2802C2

PAL16L8ACN
PROGRAMMABLE ARRAY LOGIC
- TOP VIEW -

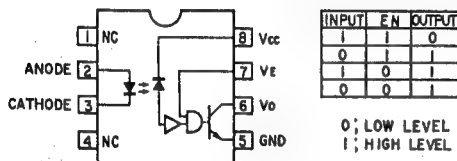


* ABOVE DIAGRAM SHOWS CONDITIONS BEFORE WRITING OF DATA.

PC111S (SHARP)
PHOTO COUPLER
- TOP VIEW -



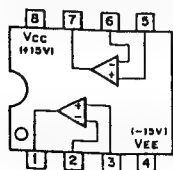
PC910 (SHARP)
PHOTO COUPLER
- TOP VIEW -



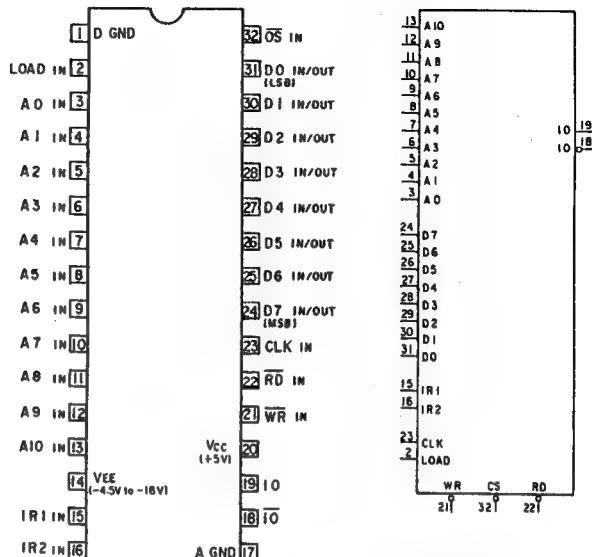
INPUT	EN	OUTPUT
1	1	0
0	1	1
1	0	1
0	0	1

0; LOW LEVEL
1; HIGH LEVEL

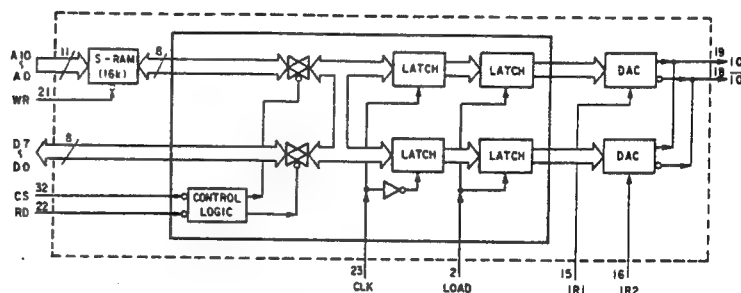
BA4558 (ROHM)
BA4558F (ROHM) FLAT PACKAGE
HA17558 (HITACHI)
M5218P (MITSUBISHI)
NJM4558D (JRC)
NJM4558D-D (JRC)
NJM4558D-FA (JRC)
NJM4558D-MD (JRC)
NJM4558M (JRC) FLAT PACKAGE
RC4558 (RAYTHEON)
uPC4558C (NEC)
uPC4558G (NEC) FLAT PACKAGE
uPC4558G2 (NEC) FLAT PACKAGE
OPERATIONAL AMPLIFIER
- TOP VIEW -



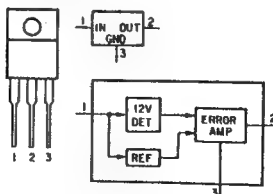
SBX167201 (SONY)
DIGITAL FUNCTION GENERATOR MODULE
- TOP VIEW -



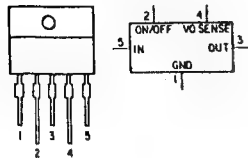
A GND : ANALOG GND
A10-A0 : ADDRESS INPUTS
CLK : CHANNEL SELECT INPUT
CS : CHIP SELECT INPUT
D7-D0 : DATA INPUTS/OUTPUTS
D GND : DIGITAL GND
10, I0 : ANALOG SIGNAL OUTPUT
IR1, IR2 : REFERENCE VOLTAGE INPUTS
LOAD : DATA OUTPUT CLOCK
RD : DATA BUS LINE SELECT INPUT
WR : WRITE INPUT



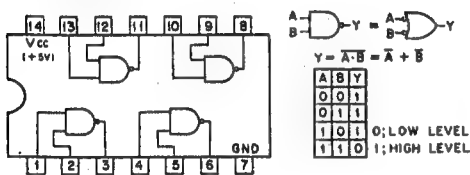
SE012 (SANKEN)
ERROR AMP
- FRONT VIEW -



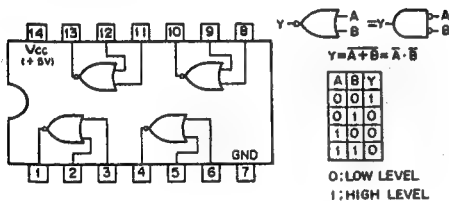
SI3050C (SANKEN)
VOLTAGE REGULATOR WITH ON/OFF TERMINAL
— FRONT VIEW —



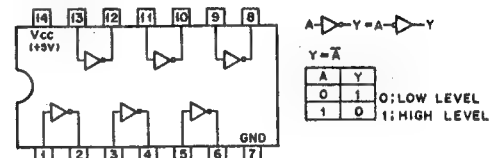
74F00PC (FSC)
HD74ALS00P (HITACHI)
HD74S00P (HITACHI)
MC74F00N (MOTOROLA)
N74F00N (SIGNETICS)
SN74ALS00AN (TI)
SN74ALS00ANS (TI) FLAT PACKAGE
SN74ALS00N (TI)
SN74AS00N (TI)
SN74S00N (TI)
SN74S00NS (TI) FLAT PACKAGE
TTL 2-INPUT POSITIVE-NAND GATE
— TOP VIEW —



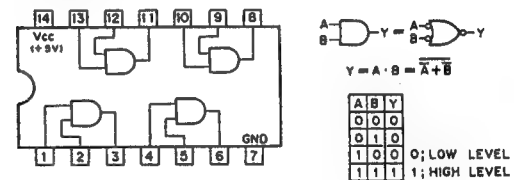
74F02PC (FSC)
MC74F02N (MOTOROLA)
N74F02N (SIGNETICS)
SN74ALS02N (TI)
SN74ALS02NS (TI) FLAT PACKAGE
SN74AS02N (TI)
SN74S02N (TI)
SN74S02NS (TI) FLAT PACKAGE
TTL 2-INPUT POSITIVE-NOR GATE
— TOP VIEW —



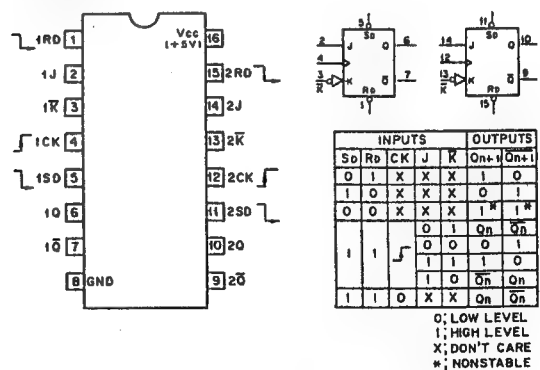
74F04PC (FSC)
74F04SJ (FSC) FLAT PACKAGE
M53204P (MITSUBISHI)
M74LS04P (MITSUBISHI)
MC74F04N (MOTOROLA)
N74F04N (SIGNETICS)
SN74ALS04AN (TI)
SN74ALS04ANS (TI) FLAT PACKAGE
SN74ALS04BN (TI)
SN74ALS04BNS (TI) FLAT PACKAGE
SN74ALS04N (TI)
SN74ALS1004N (TI)
SN74AS04N (TI)
SN74S04N (TI)
SN74S04NS (TI) FLAT PACKAGE
TTL INVERTER
— TOP VIEW —



74F08PC (FSC)
MC74F08N (MOTOROLA)
N74F08N (SIGNETICS)
SN74ALS08N (TI)
SN74ALS08NS (TI) FLAT PACKAGE
SN74AS08N (TI)
SN74LS08N (TI)
SN74S08N (TI)
TTL 2-INPUT POSITIVE-AND GATE
— TOP VIEW —

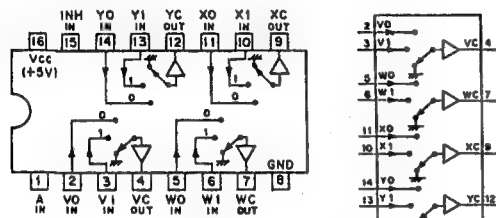


N74F109N (SIGNETICS)
SN74ALS109AN (TI)
TTL J-K FLIP-FLOP WITH DIRECT SET/RESET
— TOP VIEW —



DDM-2801C/2802C DDM-2801C2/2802C2

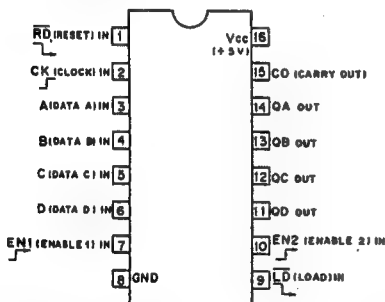
74F157APC (FSC)
74F157PC (FSC)
HD74LS157P (HITACHI)
M74LS157P (MITSUBISHI)
MB74LS157 (FUJITSU)
MC74F157N (MOTOROLA)
N74F157N (SIGNETICS)
SN74ALS157N (TI)
SN74AS157N (TI)
SN74LS157N (TI)
SN74LS157N (TI)
SN74LS157NS (TI) FLAT PACKAGE
SN74S157N (TI)
TTL 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
— TOP VIEW —



CONT.	IN	ON
INH	A	CHANNEL
0	0	0
1	1	1
X	X	GND

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE

74F163APC (FSC)
74F163PC (FSC)
74F163SJ (FSC) FLAT PACKAGE
MC74F163AN (MOTOROLA)
MC74F163AM (MOTOROLA) FLAT PACKAGE
SN74163N (TI)
SN74ALS163AN (TI)
SN74ALS163ANS (TI) FLAT PACKAGE
SN74ALS163BN (TI)
SN74ALS163BNS (TI) FLAT PACKAGE
SN74ALS163N (TI)
SN74AS163N (TI)
SN74S163N (TI)
TTL PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
— TOP VIEW —

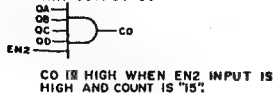


MODE SELECTION

CONTROL INPUTS				MODE
Rd	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE

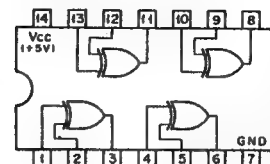
CARRY OUTPUT "CO"



COUNT SEQUENCE

COUNT	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

74F86PC (FSC)
74F86SJ (FSC) FLAT PACKAGE
MC74F86N (MOTOROLA)
N74F86N (SIGNETICS)
SN74ALS86N (TI)
SN74ALS86NS (TI) FLAT PACKAGE
SN74S86N (TI)
TTL EXCLUSIVE OR GATE
— TOP VIEW —

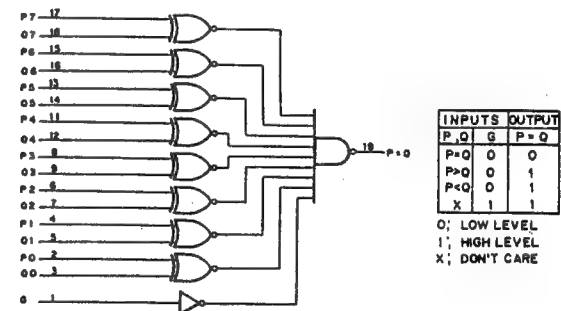
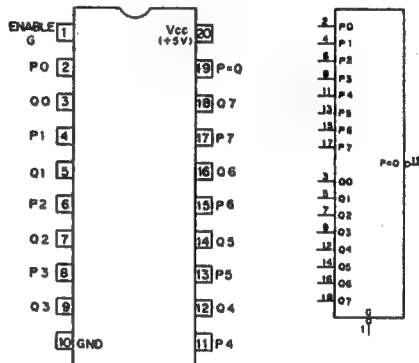


$$Y = A \oplus B = A \bar{B} + \bar{A} B$$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0: LOW LEVEL
1: HIGH LEVEL

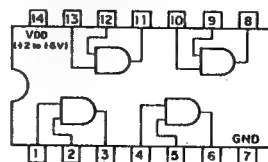
SN74ALS521N (TI)
TTL 8-BIT EQUAL-TO COMPARATOR
— TOP VIEW —



INPUTS	OUTPUT
P, Q	P = Q
P=Q	0
P>Q	0
P<Q	1
X	1

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE

HD74HC08P (HITACHI)
MC74HC08N (MOTOROLA)
SN74HC08N (TI)
TC74HC08P (TOSHIBA)
uPD74HC08C (NEC)
C-MOS 2-INPUT AND GATE
— TOP VIEW —



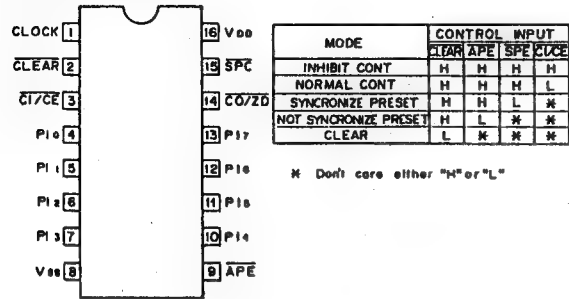
$$Y = A \cdot B = \overline{A \oplus B}$$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0: LOW LEVEL
1: HIGH LEVEL

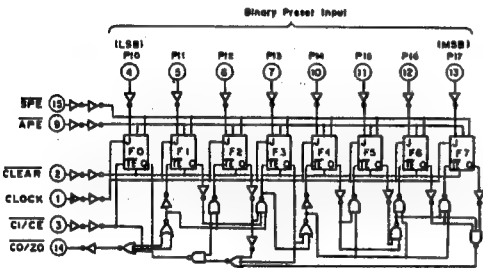
DDM-2801C/2802C
DDM-2801C2/2802C2

TC40103BP (TOSHIBA)
8-STAGE PRESETTABLE SYNCHRONOUS DOWN COUNTER
— TOP VIEW —

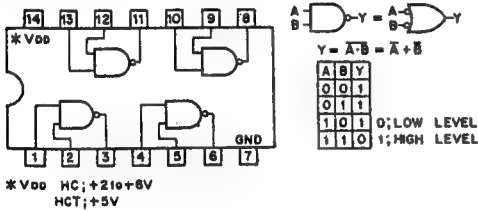


MODE	CONTROL INPUT			
	STAR	APE	SPC	COZE
INHIBIT CONT	H	H	H	H
NORMAL CONT	H	H	H	L
SYNCHRONIZE PRESET	H	H	L	*
NOT SYNCHRONIZE PRESET	H	L	*	*
CLEAR	L	*	*	*

* Don't care either "H" or "L"

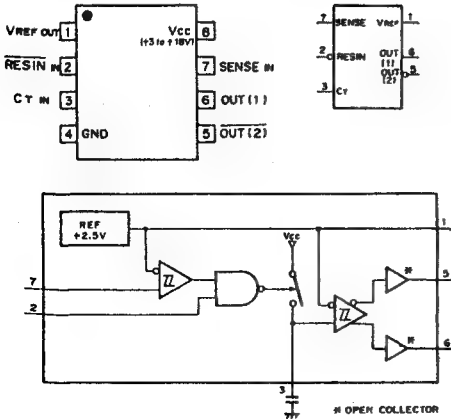


HD74HC00P (HITACHI)
MC74HC00N (MOTOROLA)
MC74HCT00N (MOTOROLA)
MSM74HC00RS (OKI)
SN74HC00N (TI)
TC74HC00P (TOSHIBA)
uPD74HC00C (NEC)
C-MOS 2-INPUT NAND GATE
— TOP VIEW —

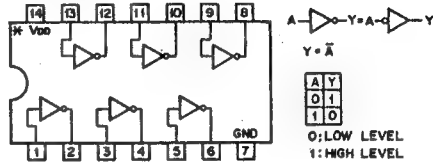


* VDD HC: +2 to +6V
HCT: +5V

TL7705ACP (TI)
TL7705CP (TI)
TL7705CPS-B (TI) FLAT PACKAGE
POWER VOLTAGE SUPERVISOR
— TOP VIEW —

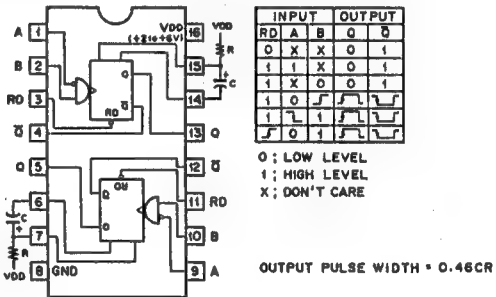


HD74HC04P (HITACHI)
MC74HC04N (MOTOROLA)
MC74HCT04N (MOTOROLA)
MC74HCU04N (MOTOROLA)
MSM74HC04RS (OKI)
SN74HC04N (TI)
TC74HC04P (TOSHIBA)
TC74HCT04P (TOSHIBA)
TC74HCU04P (TOSHIBA)
uPD74HC04C (NEC)
uPD74HCU04C (NEC)
C-MOS INVERTER
— TOP VIEW —

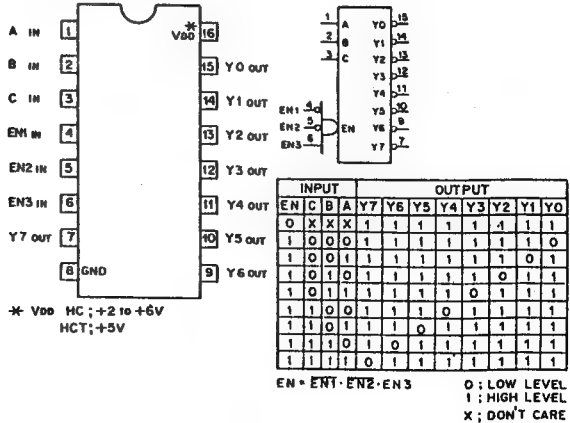


* VDD HC, HCU: +2 to +6V
HCT: +5V

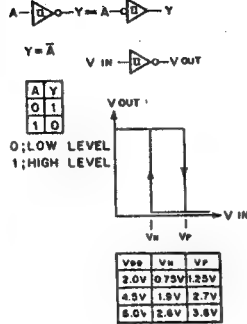
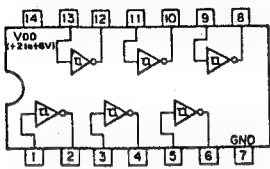
HD74HC123P (HITACHI)
MC74HC123N (MOTOROLA)
TC74HC123P (TOSHIBA)
uPD74HC123AC (NEC)
uPD74HC123C (NEC)
C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
— TOP VIEW —



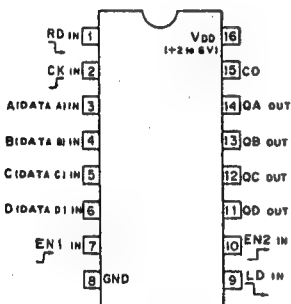
HD74HC138P (HITACHI)
HD74HCT138P (HITACHI)
MC74HC138N (MOTOROLA)
MC74HCT138N (MOTOROLA)
SN74HC138N (TI)
TC74HC138P (TOSHIBA)
TC74HCT138P (TOSHIBA)
C-MOS 3-TO-8 LINE DECODER/DEMULTEPLEXER
— TOP VIEW —



HD74HC14P (HITACHI)
MC74HC14N (MOTOROLA)
MSM74HC14RS (OKI)
SN74HC14N (TI)
TC74HC14P (TOSHIBA)
uPD74HC14C (NEC)
C-MOS SCHMITT TRIGGER INVERTER
— TOP VIEW —



HD74HC183P (HITACHI)
MC74HC183N (MOTOROLA)
MSM74HC183RS (OKI)
SN74HC183N (TI)
TC74HC183P (TOSHIBA)
uPD74HC183C (NEC)
C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
— TOP VIEW —

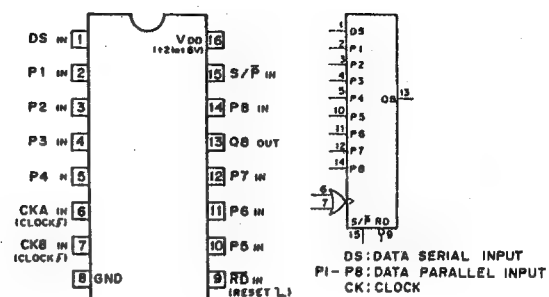


MODE SELECTION				
CONTROL INPUTS				MODE
Rd	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

CARRY OUTPUT "CO"
CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

COUNT SEQUENCE				
COUNT	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

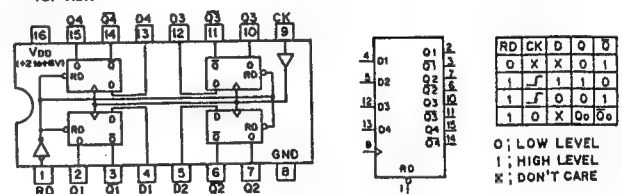
HD74HC166P (HITACHI)
MC74HC166N (MOTOROLA)
SN74HC166N (TI)
TC74HC166P (TOSHIBA)
C-MOS 8-BIT SHIFT REGISTER
— TOP VIEW —



CK	CKB	CKA	DS	P1	P2	P3	P4	Q8	Q7	Q6	Q5	Q4	Q3	Q2	Q1
0	0	0	0	X	X	X	X	0	0	0	0	0	0	0	0
0	0	1	0	X	X	X	X	0	0	0	0	0	0	0	0
0	1	0	0	X	X	X	X	0	0	0	0	0	0	0	0
0	1	1	0	X	X	X	X	0	0	0	0	0	0	0	0
1	0	0	0	X	X	X	X	0	0	0	0	0	0	0	0
1	0	1	0	X	X	X	X	0	0	0	0	0	0	0	0
1	1	0	0	X	X	X	X	0	0	0	0	0	0	0	0
1	1	1	0	X	X	X	X	0	0	0	0	0	0	0	0

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE

HD74HC175P (HITACHI)
MC74HC175N (MOTOROLA)
MSM74HC175RS (OKI)
SN74HC175N (TI)
TC74HC175P (TOSHIBA)
uPD74HC175C (NEC)
C-MOS D-TYPE FLIP-FLOP WITH RESET
— TOP VIEW —

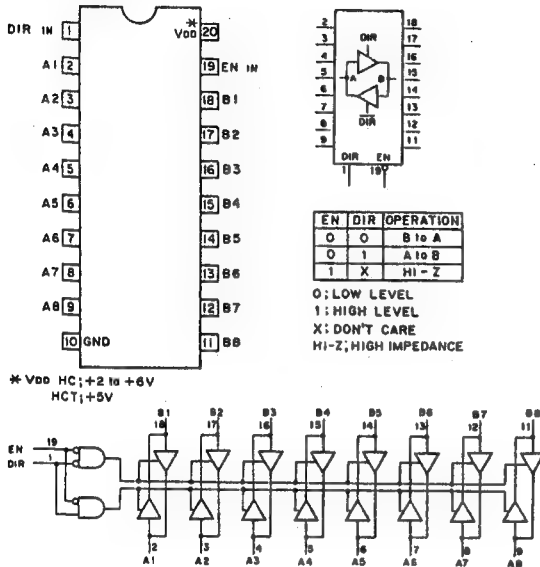


RD	CK	D	Q
0	X	X	0
1	0	1	1
1	1	0	0
1	0	X	Q0

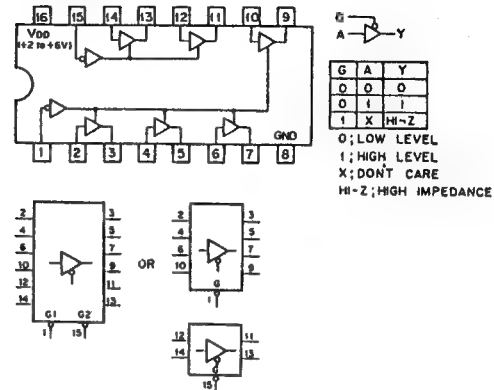
0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE

DDM-2801C/2802C DDM-2801C2/2802C2

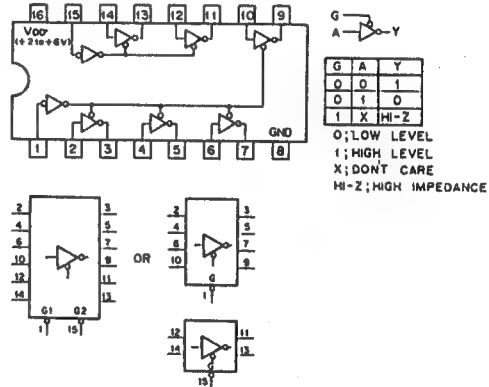
HD74HC245P (HITACHI)
HD74HCT245P (HITACHI)
MC74HC245N (MOTOROLA)
MC74HCT245N (MOTOROLA)
MSM74HC245RS (OKI)
SN74HC245N (TI)
SN74HCT245N (TI)
TC74HC245P (TOSHIBA)
uPD74HC245C (NEC)
C-MOS BILATERAL BUS TRANSCEIVERS WITH 3-STATE OUTPUT
— TOP VIEW —



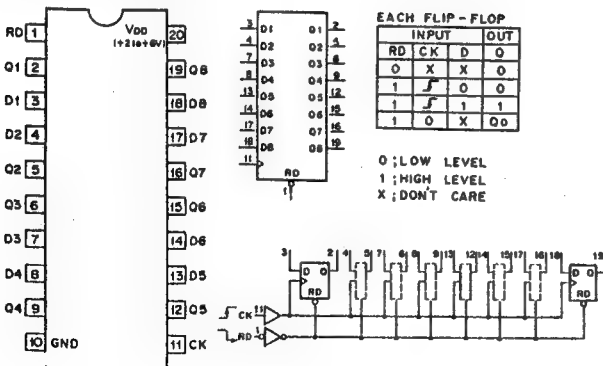
HD74HC367P (HITACHI)
MC74HC367N (MOTOROLA)
SN74HC367N (TI)
TC74HC367F (TOSHIBA) FLAT PACKAGE
TC74HC367P (TOSHIBA)
uPD74HC367C (NEC)
C-MOS BUS DRIVER WITH 3-STATE OUTPUTS
— TOP VIEW —



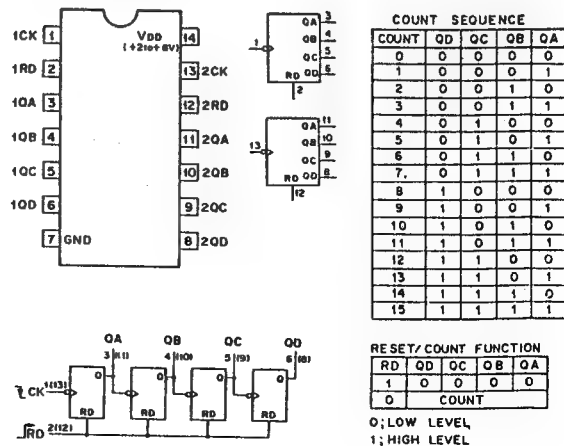
HD74HC368P (HITACHI)
MC74HC368N (MOTOROLA)
SN74HC368N (TI)
TC74HC368P (TOSHIBA)
C-MOS BUS INVERTER WITH 3-STATE OUTPUTS
— TOP VIEW —



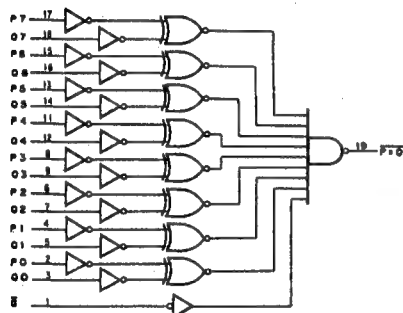
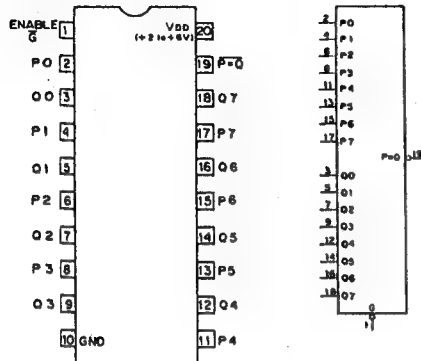
HD74HC273P (HITACHI)
MC74HC273N (MOTOROLA)
SN74HC273N (TI)
TC74HC273P (TOSHIBA)
C-MOS D-TYPE FLIP-FLOP WITH RESET
— TOP VIEW —



HD74HC393P (HITACHI)
MC74HC393N (MOTOROLA)
SN74HC393N (TI)
TC74HC393P (TOSHIBA)
C-MOS 4-BIT BINARY COUNTER
— TOP VIEW —



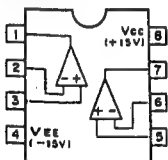
MC74HC88N (MOTOROLA)
MSM74HC88RS (OKI)
SN74HC88N (TI)
TC74HC88P (TOSHIBA)
uPD74HC88C (NEC)
C-MOS 8-BIT MAGNITUDE COMPARATOR
— TOP VIEW —



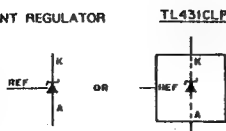
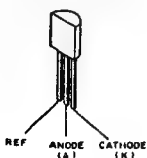
INPUTS		OUTPUT	
P	Q	P=Q	P<Q
0	0	1	0
0	1	0	1
1	0	0	1
1	1	1	0

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE

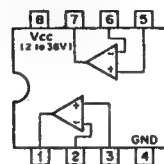
TL082ACP (TI)
TL082BCP (TI)
TL082CP (TI)
TL082CPS (TI) FLAT PACKAGE
uPC4082C (NEC)
uPC4082G2 (NEC) FLAT PACKAGE
OPERATIONAL AMPLIFIER
(J FET-INPUT)
— TOP VIEW — TL082CP



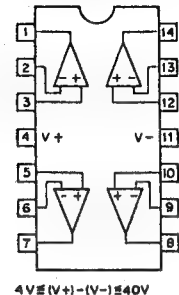
L5431 (SANYO)
TL431CLP (TI)
TL431CLPB (TI)
uPC1083J (NEC)
ADJUSTABLE PRECISION SHUNT REGULATOR



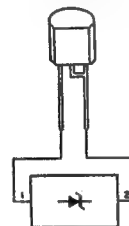
BA8993 (ROHM)
IR9393 (SHARP)
LM393N (NSC)
NJM2903D (JRC)
NJM2903M (JRC) FLAT PACKAGE
uA393DC (FSC)
uPC393C (NEC)
uPC393G (NEC) FLAT PACKAGE
uPC393G2 (NEC) FLAT PACKAGE
VOLTAGE COMPARATOR
— TOP VIEW — uA393DC



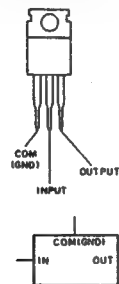
uPC4574C (NEC)
uPC4574G2 (NEC)
OPERATIONAL AMPLIFIER
— TOP VIEW —



uPC574J (NEC)
BIPOLAR ZENER DIODE (10mA)
— FRONT VIEW —



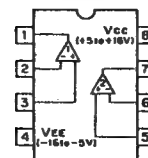
AN79?? (MATSUSHITA)
FS79?? (SANKEN)
MC79?? CT (MOTOROLA)
NJM79?? A (JRC)
uA79?? UC (FSC)
uPC79?? H (NEC)
NEGATIVE VOLTAGE REGULATOR (1A)
— SIDE VIEW —



OUTPUT VOLTAGE	AN79??	FS79??	uA79??UC	uPC79??H	MC79??CT
-2V	AN7905	FS7905	uA7905UC	uPC7905H	MC7905CT
-5V	AN7906	FS7906	uA7906UC	uPC7906H	MC7906CT
-5.2V	AN7907	FS7907	uA7907UC	uPC7907H	MC7907CT
-6V	AN7908	FS7908	uA7908UC	uPC7908H	MC7908CT
-7V	AN7909	FS7909	uA7909UC	uPC7909H	MC7909CT
-8V	AN7910	FS7910	uA7910UC	uPC7910H	MC7910CT
-9V	AN7911	FS7911	uA7911UC	uPC7911H	MC7911CT
-10V	AN7912	FS7912	uA7912UC	uPC7912H	MC7912CT
-12V	AN7913	FS7913	uA7913UC	uPC7913H	MC7913CT
-15V	AN7914	FS7914	uA7914UC	uPC7914H	MC7914CT
-18V	AN7915	FS7915	uA7915UC	uPC7915H	MC7915CT
-20V	AN7916	FS7916	uA7916UC	uPC7916H	MC7916CT
-24V	AN7917	FS7917	uA7917UC	uPC7917H	MC7917CT

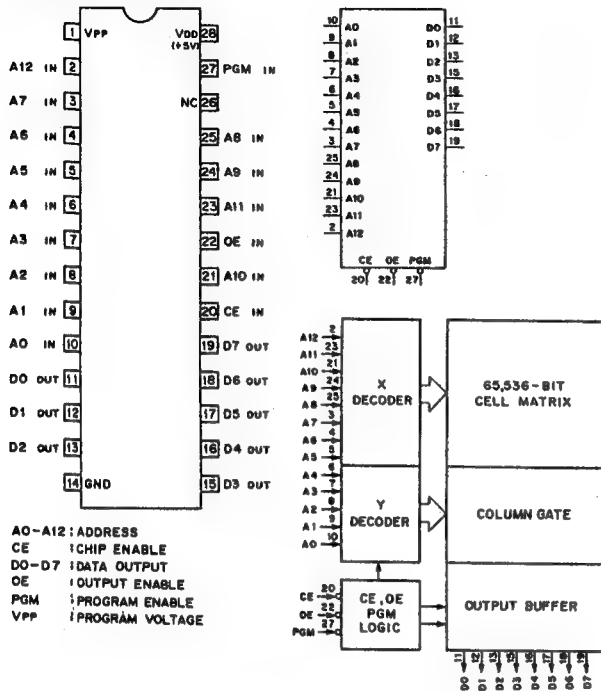
OUTPUT VOLTAGE	NJM79??A
-2V	NJM7905A
-5V	NJM7906A
-5.2V	NJM7907A
-6V	NJM7908A
-7V	NJM7909A
-8V	NJM7910A
-9V	NJM7911A
-10V	NJM7912A
-12V	NJM7913A
-15V	NJM7914A
-18V	NJM7915A
-20V	NJM7916A
-24V	NJM7917A

uPC814C (NEC)
uPC814G2 (NEC) FLAT PACKAGE
TTL-DUAL OPERATIONAL AMPLIFIER
— TOP VIEW —



DDM-2801C/2802C DDM-2801C2/2802C2

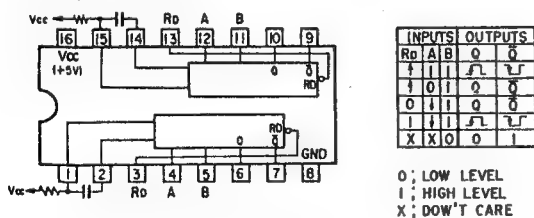
uPD28C84C-20 (NEC) (ACCESS TIME = 200 nS)
N-MOS 64K (8K-B) ERASABLE PROM WITH 3-STATE OUTPUTS
- TOP VIEW -



Pin	CE	OE	PGM	VPP	Dn	FUNCTION
An	0	0	1	+5V	DENTERED	READ
An	0	1	1	+5V	HI-Z	OUTPUT DISABLE
An	0	0	0	+5V	HI-Z	OUTPUT DISABLE
X	1	X	X	+5V	HI-Z	STANDBY
An	0	X	1	+21V	DINH	PGM
An	0	0	1	+21V	DENTERED	PGM VERIFY
X	1	X	X	+21V	HI-Z	PGM INH

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE
HI-Z: HIGH IMPEDANCE

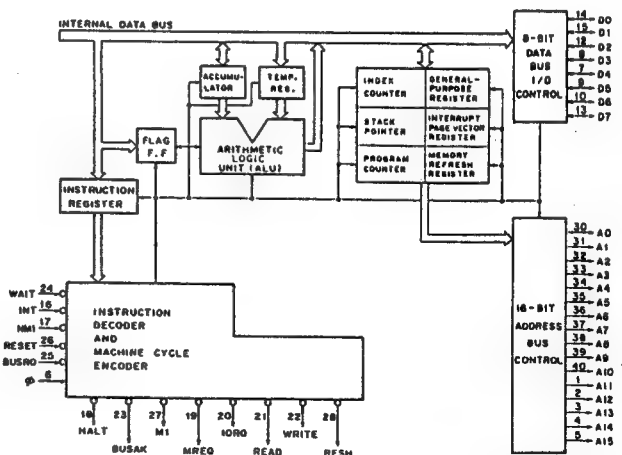
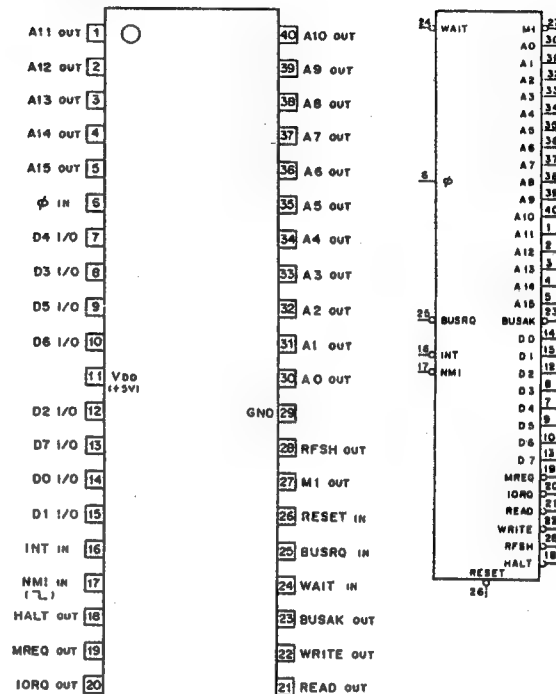
uPD4528BC (NEC)
DUAL MONOSTABLE MULTIVIBRATOR
- TOP VIEW -



Pin	Q	RD
1	0	0
2	1	0
3	0	1
4	1	1
5	0	0
6	1	1
7	0	0
8	1	1

0: LOW LEVEL
1: HIGH LEVEL
X: DOW'T CARE

LH5080A (SHARP)
TMP284C00AP-8 (TOSHIBA)
uPD70008A (NEC)
uPD70008C (NEC)
Z8030PC (AMD)
Z84C0006PSC (ZILLOG)
Z84C00-6PS (ZILLOG)
C-MOS 8-BIT MICROPROCESSOR
- TOP VIEW -



φ : CLOCK
A0-A15 : 3-STATE ADDRESS OUTPUT
BUSAK : BUS ACKNOWLEDGE
BUSRQ : BUS REQUEST
DO-D7 : 3-STATE DATA INPUT/OUTPUT
HALT : HALT STATE
INT : INTERRUPT REQUEST
IORQ : 3-STATE I/O REQUEST
M1 : MACHINE CYCLE 1
MREQ : 3-STATE MEMORY REQUEST
NMI : NON-MASKABLE INTERRUPT (DOWN EDGE TRIGGER)
READ : 3-STATE MEMORY READ
RFSH : REFRESH
WRITE : 3-STATE MEMORY WRITE

2SA1142
2SA1380
2SC2682
2SC3502



2SA1386
2SC3318
2SC3519
2SC3519S



2SC2668
DTC124ES



2SK899



CR02AM-4



ERD38-06
RU-2M
SIB01-02



2SA1164
2SC1890A
2SC2878A



2SA893A
2SC2910



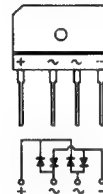
2SC3998



2SK924



D5SB60



RD10M-T1B2
RD13M-T1B2
RD3.0M-T1B1
RD4.7M-T1B3
RD5.1M-T1B2
RD5.6M-T1B2
RD6.8M-T1B2
RD8.2M-T1B2



2SA1175
2SC2785



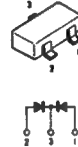
2SA979



2SD1887



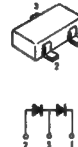
1S2837



DD50R



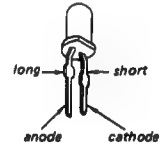
1SS123



D8LCA20
D8LCA20R



TLG124A
TLR124



2SA1221
2SB734
2SC2958
2SC3209
2SD774



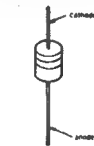
2SB1274SA
2SC3746



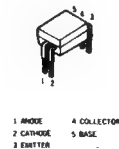
2SK105A
VN1316N3



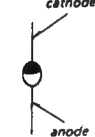
1SS148
RD10ES-B1
RD10ESB
RD12ES-B2
RD15ESB
RD15ESB1
RD2.4ESB2
RD4.7ESB2
RD5.1ESB
RD6.8ESB1



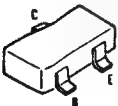
ERC91-02



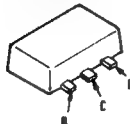
V11N



2SA1330
2SA1462
2SA812
2SC1621
2SC1623
2SC3356
DTA123EK
DTC123EK



2SB798
2SC3357
2SD999



2SK1197



2SK160



2SA1358
2SC3421
2SC4200



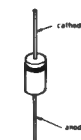
2SC2336B



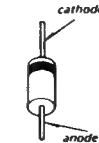
2SK523TP



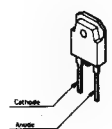
1SS83
1SS97
EL1Z
ERC81-004



ERD09-15



V19E-T52



SECTION 6

TROUBLE SHOOTING

Trouble Shooting Method

6-1. Utilizing the failure Indicators

Failure can be diagnosed by referring to the indicator mechanisms listed below in items (1), (2), (3), and (4).

(Refer to chart 1 which indicates all types of LED error displays)

(1) Receiving screen

1. Picture blackout
2. Focus error
3. Convergence distortion
4. Uneven color (landing)
5. Picture distortion and change in picture size
6. White balance error

(2) Failure detection circuit installed in every main circuit (LED display)

- Green LED is lighted in non-failure conditions
- Red LED is lighted in failure conditions

(3) LED error display of the remote controller (DDM-RM10)

(4) FAN FAIL→FAN replacement (one of three)

Perform trouble shooting by referring to the above indicator mechanisms chart 1 on the facing page and related trouble shooting flow charts included later in this section.

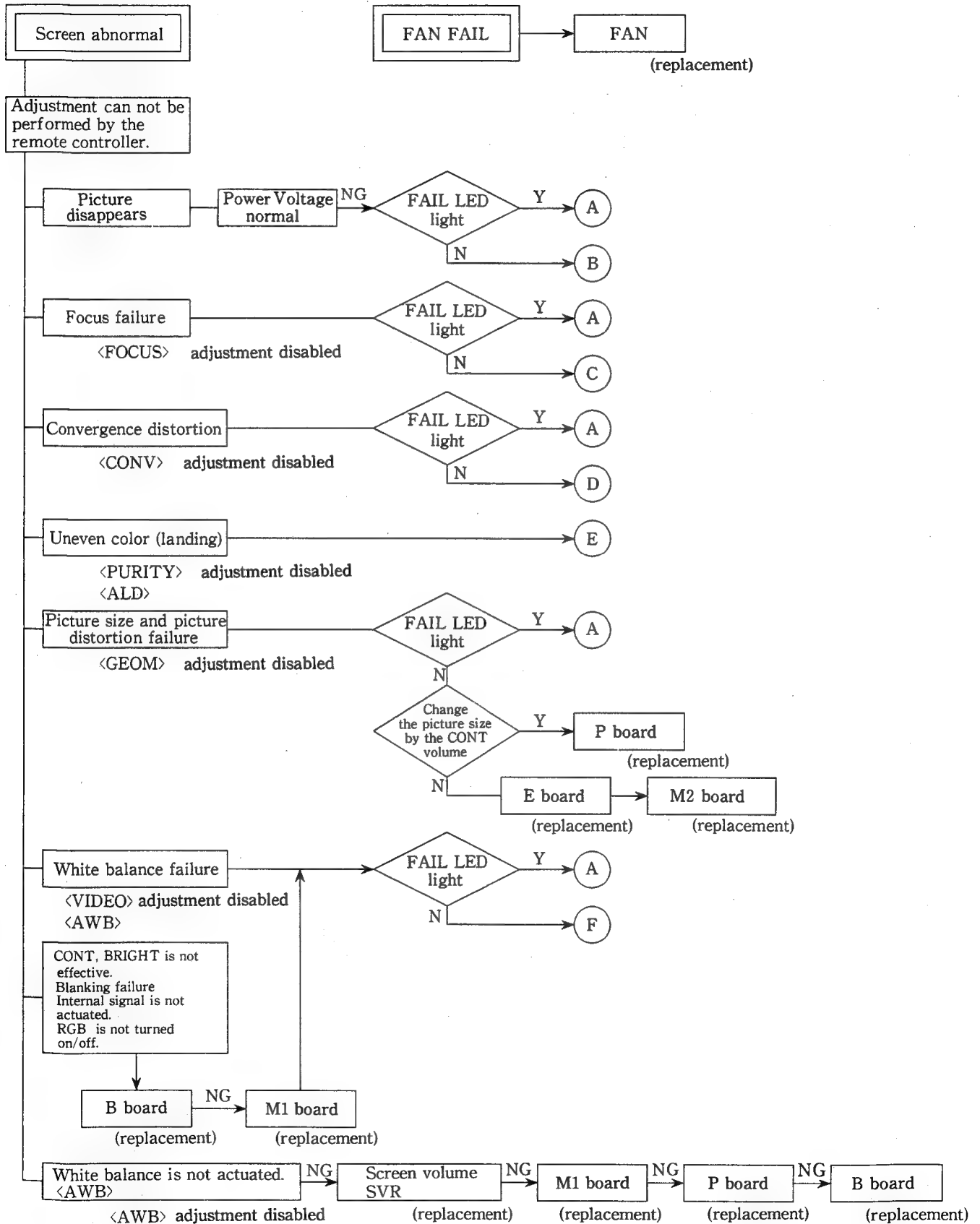
Check the screen content, LED display on the display of the remote controller.

- Note**
1. When the LED of OVP is lighted, keep the power off for a while. After confirming that the light is turned off, perform the operations.
 2. Be sure to turn off the power before the connector is unplugged or replaced.
 3. When moving to the next operation, after the connector is unplugged, be sure to install the connector again to where it was.
 4. The names COMPL and BLOCK are omitted.
(example: FHL COMPL→FHL)

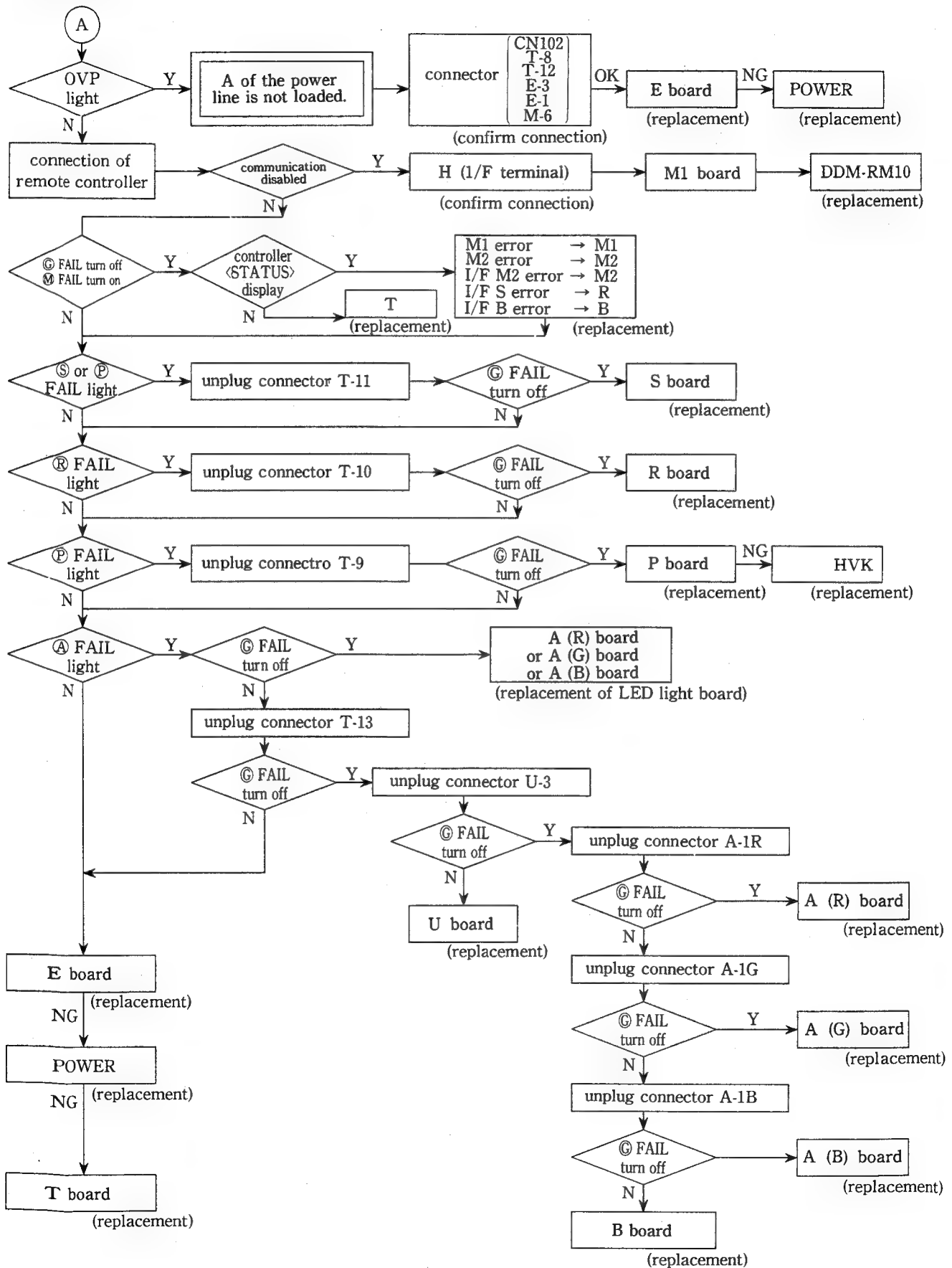
Failure Display

LED display on the T board	Board	LED display on each board	Board	Failure circuit block name	Failure and related phenomenon	LCD display of controller (STATUS)
STBY 12V 5V		— —		12V power 5V power	can not power on can not power on	— —
G OVP		—	G	170V line 145V line 75V line 45V line 22V line 15V line	170V 145V 75V 45V 22V 15V Light circuit load causes the high voltage protector to be actuated and the voltage and picture to be cut off.	G
170V DWN 145V 75V 45V 22V 15V		— — — — —	G	170V line 145V line 75V line 45V line 22V line 15V line	170V Line Failure (load shorting, etc.) 145V Line Failure 75V Line Failure 45V Line Failure 22V Line Failure 15V Line Failure	
A		A FAIL IND (R) FAIL IND (G) FAIL IND (B)	A	video amplifier (R) video amplifier (G) video amplifier (B)	The picture turns to red or cyan. The picture turns to green or magenta. The picture turns to blue or yellow.	A
—		B NO SYNC		HD input	The picture is distorted.	—
E		E H FAIL V FAIL		horizontal output vertical output	No High Voltage/No picture	E
P		P HV FAIL HV PROT IK1 PROT IK2 PROT		HV output HV protector IK protector IK protector	No High Voltage/No picture	P
R		R H AMP FAIL	R	DCT-1 DCT2 DCT3	The horizontal convergence of R is considerably distorted. (in X-axis direction) The horizontal convergence of B is considerably distorted. (in X-axis direction) The convergence of the center is distorted.	R
S		S CY FAIL	S	CY-1 CY-2	The vertical convergence is distorted.	S
R		R QP FAIL	R	AQP OUT DQP OUT	The beam shape is distorted, and the focus turns worse. (on axis) The beam shape is distorted, and the focus turns worse. (corner)	S
—		DFX FAIL	R	DFX	The focus turns worse.	
—		R DFX PROT	R	DFY	The focus protector is actuated. High voltage is cut.	—
M		M1 (segment display)	M1	EPROM	IC4 (EPROM) SAM Check failure	M M1, IC4
		M1 (segment display)	M1	RAM	IC5 (EPRAM) SAM check failure IC6 (EPRAM) SAM Check failure	M M1, IC5
			M2	D/A	IC9 (H CONV R/B) read/write failure IC10 (H CONV B) read/write failure IC11 (CY OUT) read/write failure IC12 (C VCR) read/write failure IC13 (DFX) read/write failure IC14 (AQP) read/write failure IC15 (DQP) read/write failure	M M2, IC1 M2, IC2 M2, IC3 M2, IC4 M2, IC5 M2, IC6 M2, IC7
		M1 (segment display)	M1	EEPROM	IC7 (EPROM) SAM check failure IC8 (EPROM) SAM check failure	M M1, IC7 M1, IC8
		M1 (segment display)	M1	I/F	serial out to B failure serial out to R failure serial out to M2 failure	M I/F M1↔B I/F M1↔S I/F M1↔M2
		M1 (segment display)	M1		IC3 loop testing communication error in monitor	M M1, IC3
		M1 (segment display)	T	A FAIL E FAIL G FAIL M FAIL P FAIL R FAIL S FAIL FAN FAIL		A E G M P R S FAN
—		M1			normal	—
FAN				FAN	failure of FAN (any of these)	FAN

6-2. BY Phenomenon

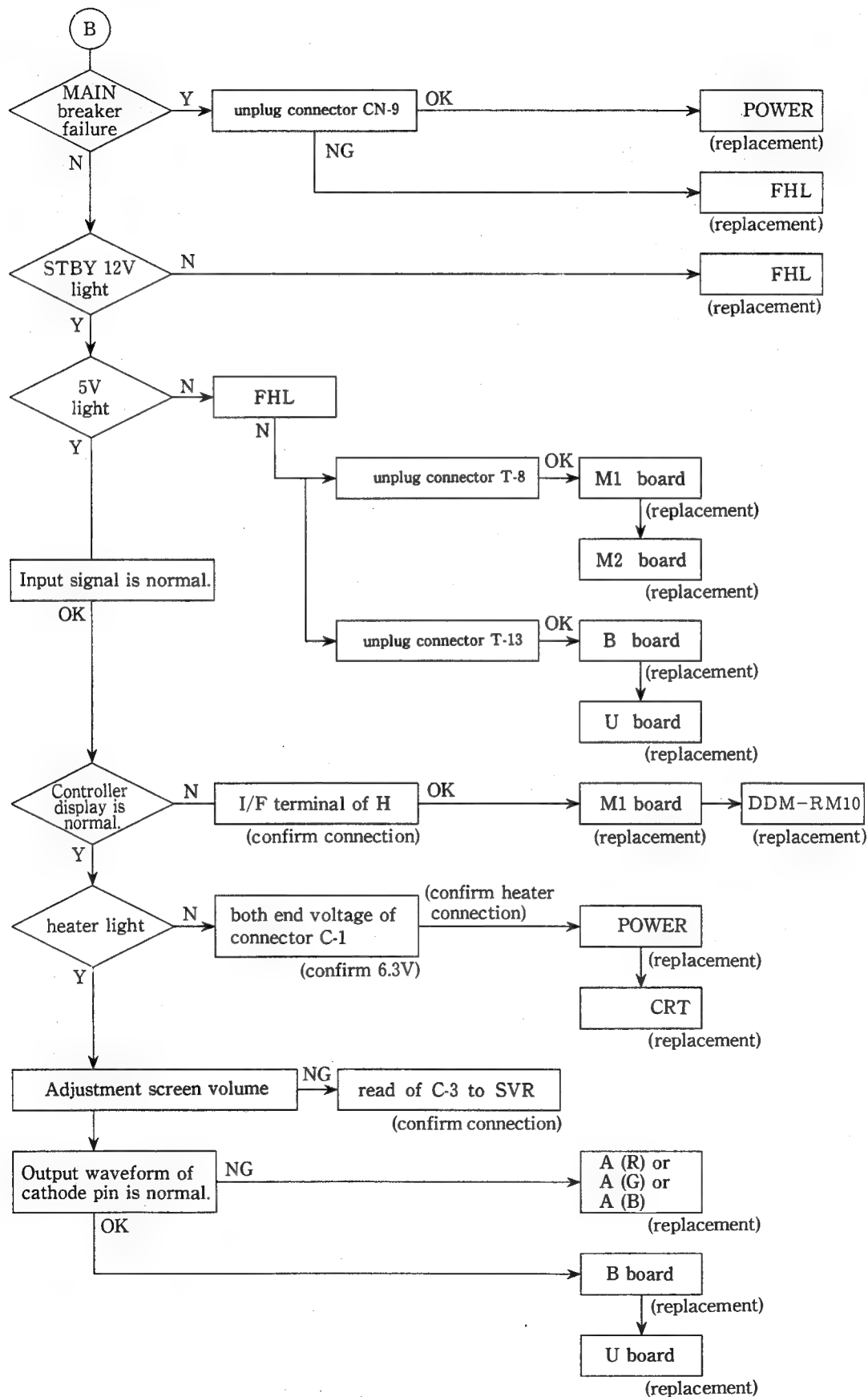


Phenomenon

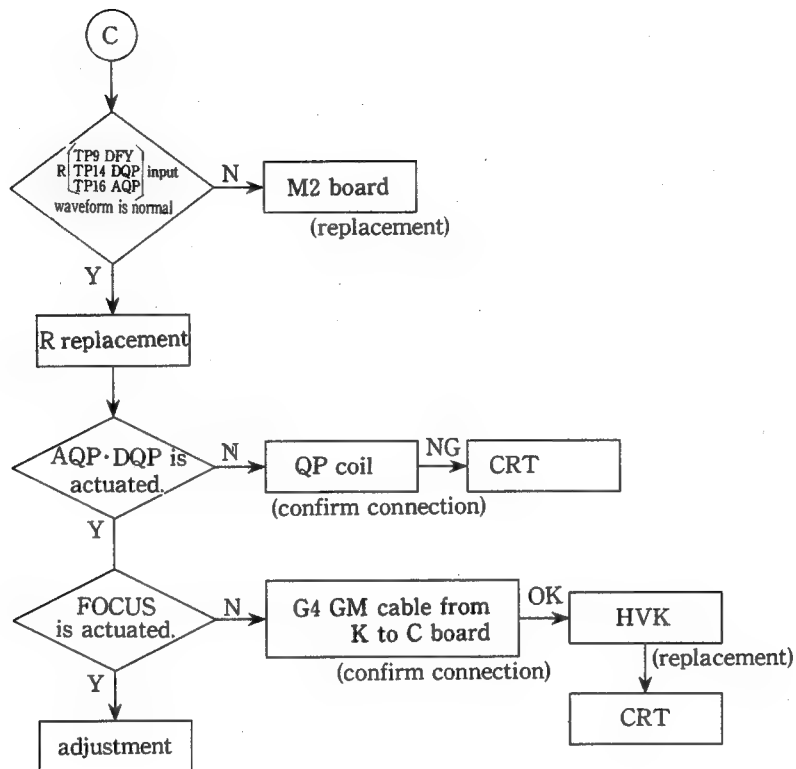


DDM-2801C/2802C
DDM-2801C2/2802C2

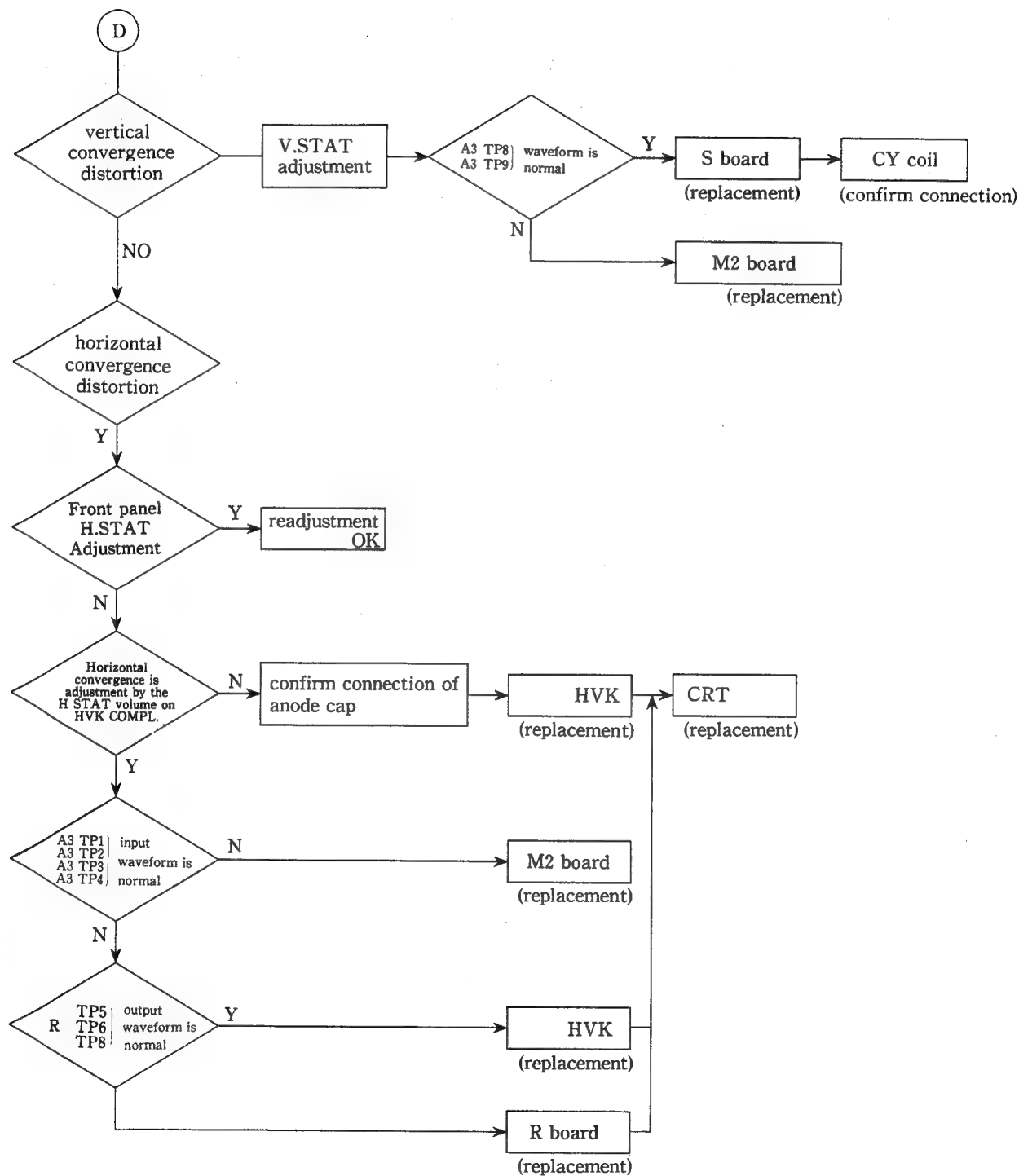
No Picture Signal



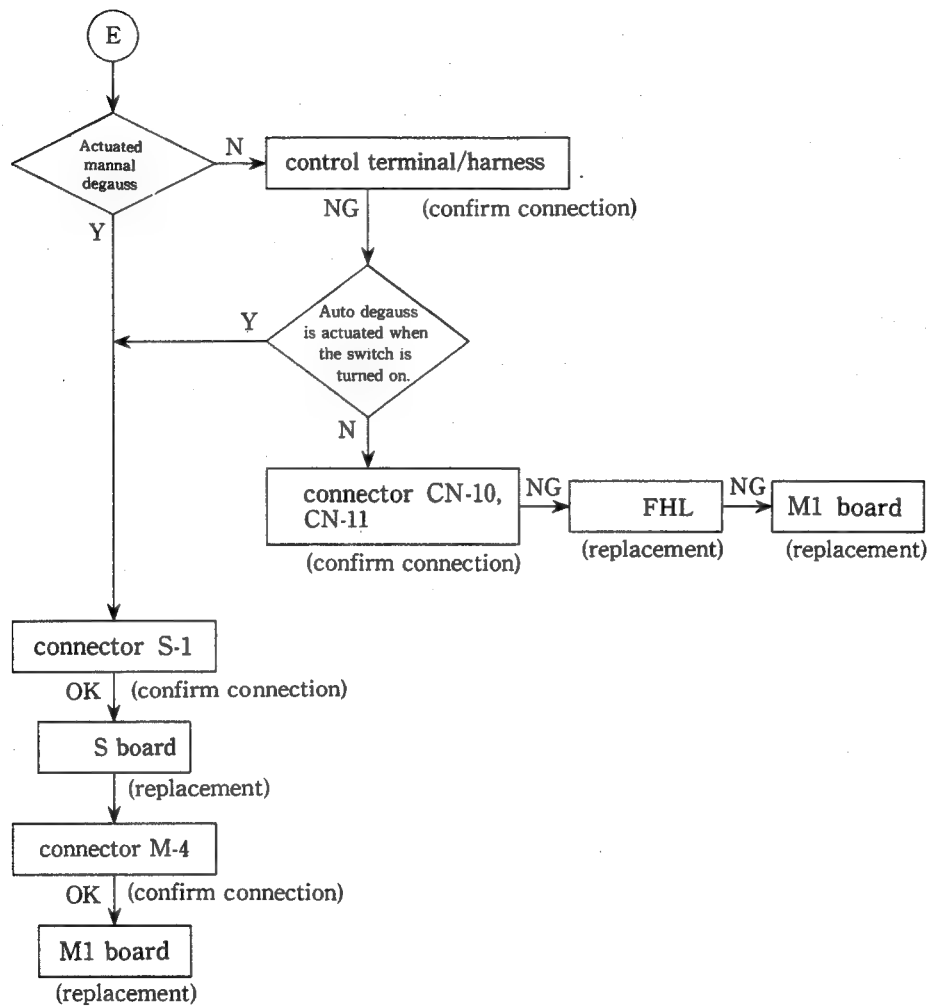
Focus Distortion



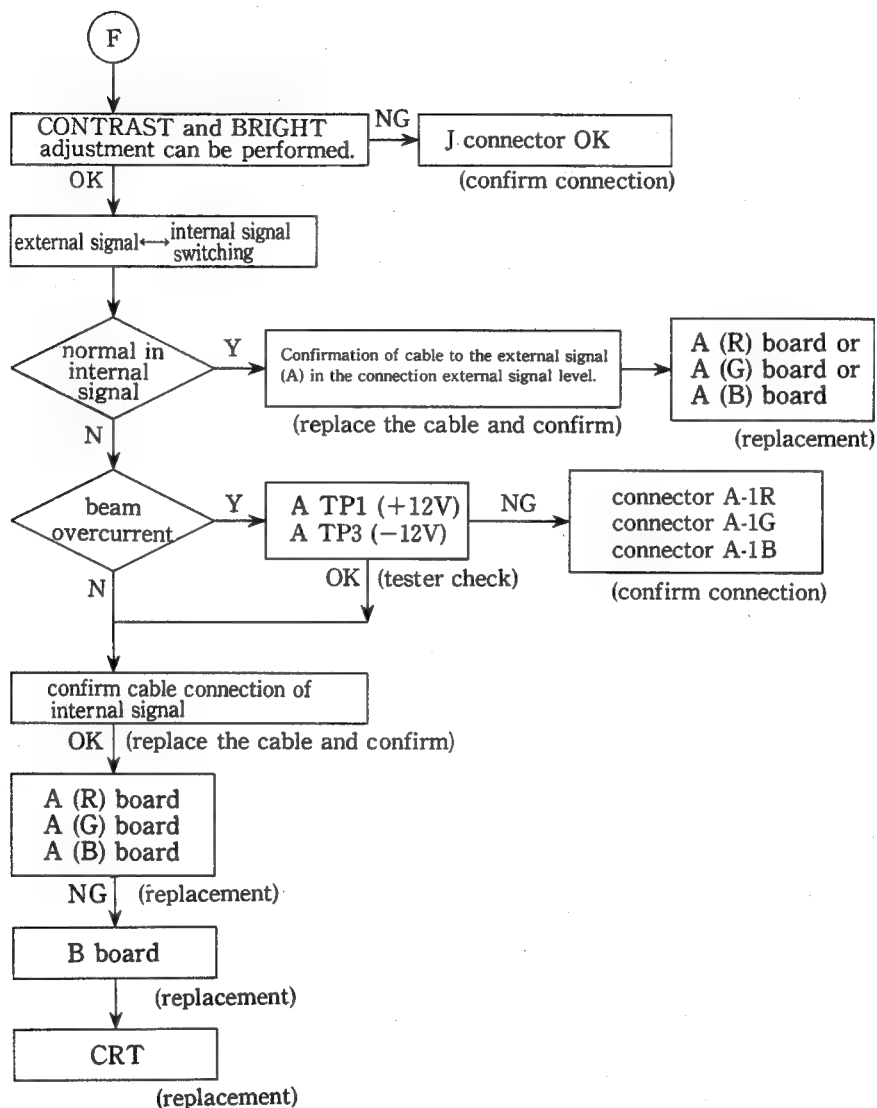
Convergence Distortion



Uneven Color (landing) Failure



White Balance Failure



SECTION 7
EXPLODED VIEWS

NOTE:

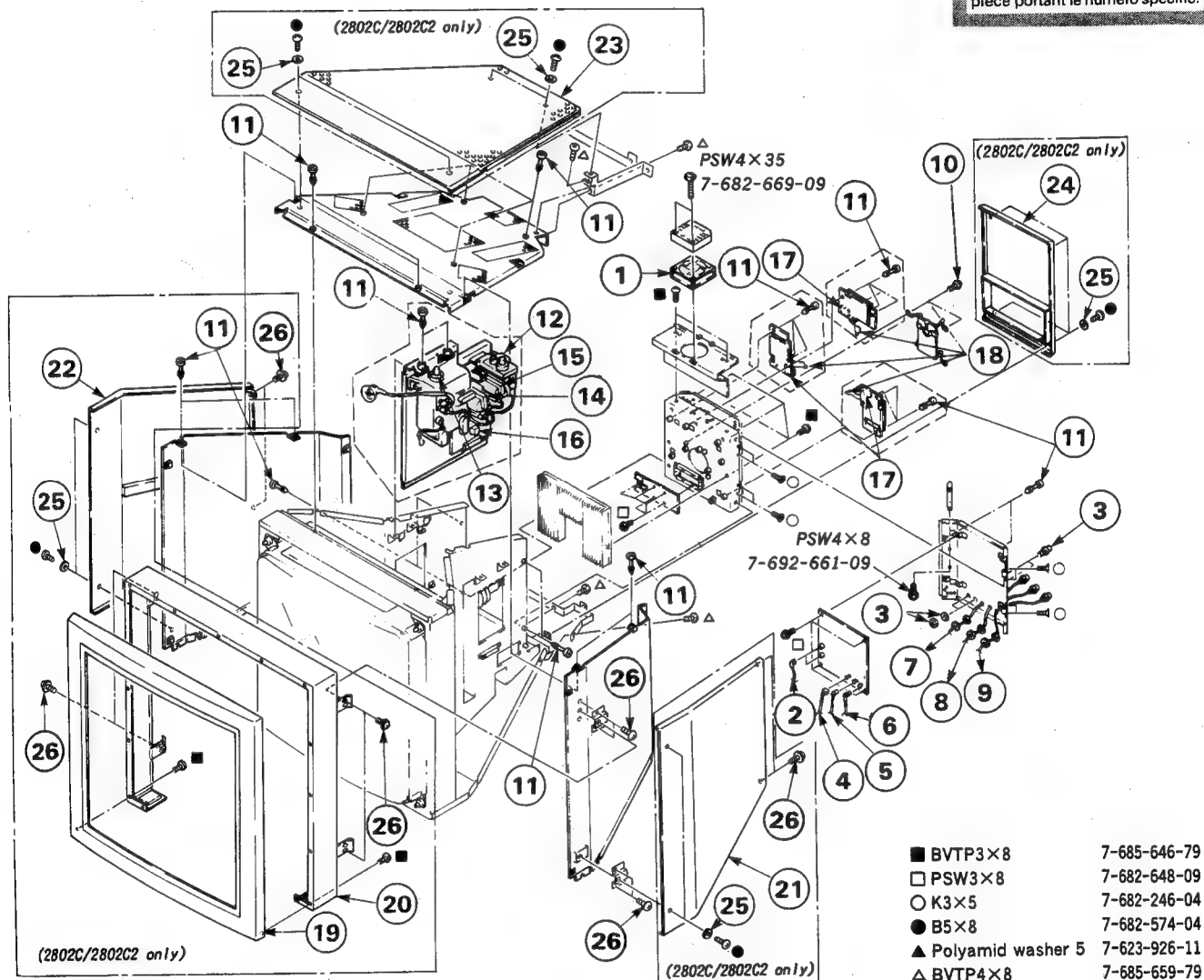
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

7-1. HVK BLOCK AND ABC BLOCK



Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
1	Δ 1-541-449-21	FAN, DC (WIRH SENSOR)		14	Δ 1-439-442-11	TRANSFORMER ASSY FLYBACK	
2	*1-555-110-00	CABLE, PIN		15	Δ 1-439-445-11	TRANSFORMER ASSY FLYBACK	
3	1-562-576-11	ADAPTER, CONVERSION BNC PIN		16	Δ 1-439-440-11	TRANSFORMER ASSY FLYBACK	
4	*1-574-162-11	CABLE, CONNECTION		17	*1-629-851-11	AA BOARD	
5	*1-574-163-11	CABLE, CONNECTION		18	*1-628-305-21	AB BOARD	
6	*1-574-164-11	CABLE, CONNECTION		19	4-394-578-02	BEZEL (DDM-2802C/2802C2 only)	
7	*1-574-165-11	CABLE, CONNECTION		20	X-4391-550-1	CABINET ASSY CENTER (DDM-2802C/2802C2 only)	
8	*1-574-166-11	CABLE, CONNECTION		21	4-394-505-11	PANEL (RIGHT) (DDM-2802C/2802C2 only)	
9	*1-574-167-11	CABLE, CONNECTION		22	4-394-504-11	PANEL (LEFT) (DDM-2802C/2802C2 only)	
10	4-382-854-11	SCREW (M3X10), P. SW (+)		23	4-394-501-11	PANEL (TOP) (DDM-2802C/2802C2 only)	
11	4-391-550-01	SCREW (M5X15) (A), LOCK		24	4-394-595-11	PANEL (REAR) (DDM-2802C/2802C2 only)	
12	Δ 1-238-341-11	RESISTOR ASSY HIGH VOLTAGE		25	4-394-595-01	WASHER, PA (DDM-2802C/2802C2)	
13	Δ 1-453-111-12	DTC BLOCK HIGH VOLTAGE		26	4-394-596-01	SCREW (M5) TERMINAL (DDM-2802C/2802C2)	

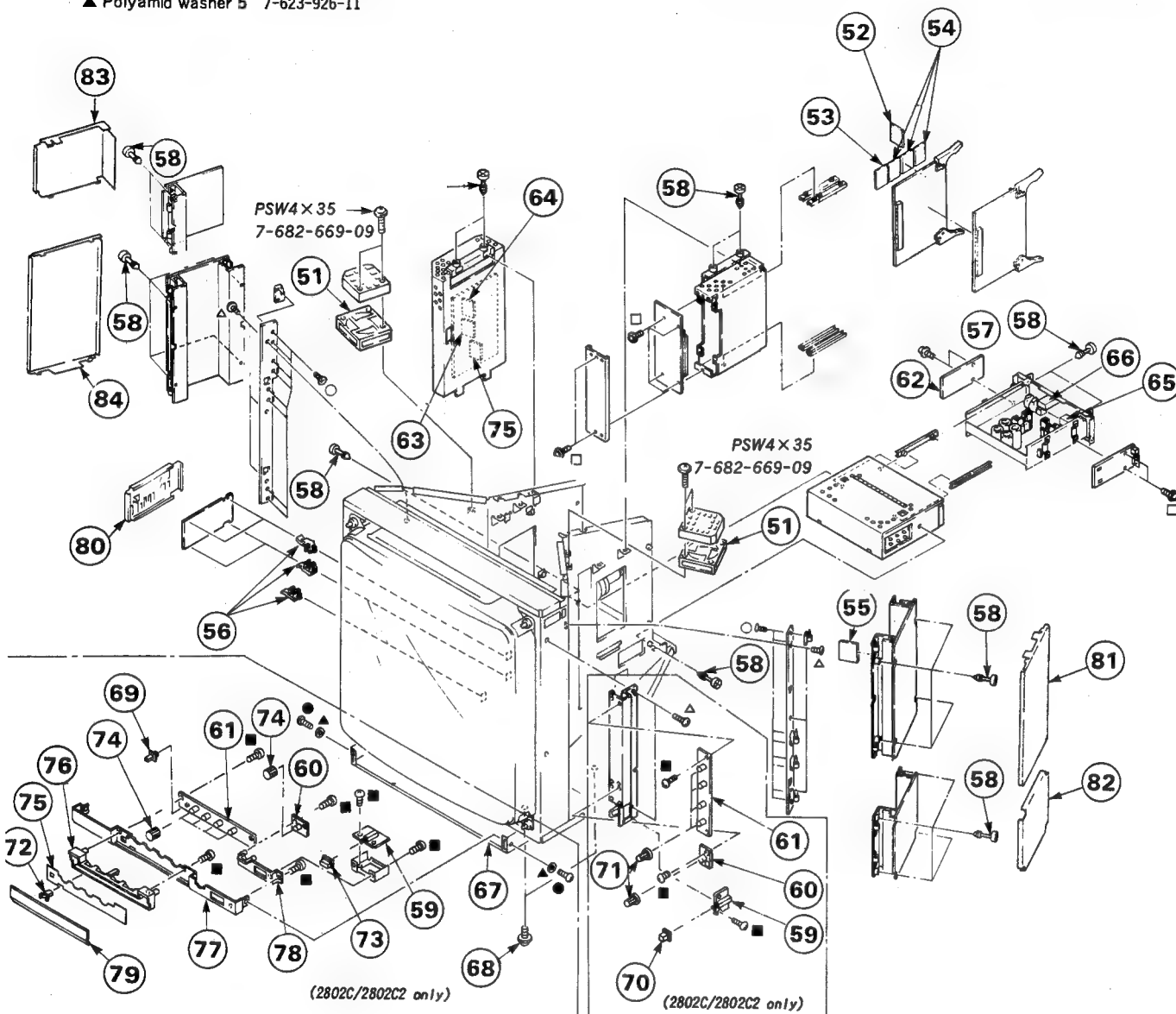
DDM-2801C/2802C DDM-2801C2/2802C2

7-2. POWER SUPPLY BLOCK AND FHL BLOCK

- BVTP3×8 7-685-646-79
- PSW3×8 7-682-648-09
- K3×5 7-682-246-04
- △ BVTP4×8 7-685-659-79
- B5×8 7-682-574-04
- ▲ Polyamid washer 5 7-623-926-11

Les composants identifiés par une trame et par une marque ▲ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.



Ref.No	Part No.	Description	Remark
51	▲ 1-541-449-21	FAN, DC (WIRH SENSOR)	
52	*A-1301-815-A	M2A BOARD, COMPLETE	
53	*A-1301-816-A	M2B BOARD, COMPLETE	
54	*A-1301-826-A	M2C BOARD, COMPLETE	
55	*A-1341-279-A	EA BOARD, COMPLETE	
56	*4-321-929-00	HOLDER, PC BOARD	
57	4-382-854-11	SCREW (M3X10), P, SW (+)	
58	4-391-550-01	SCREW (M5X15) (A), LOCK	
59	*1-627-354-12	J1 BOARD	
60	1-627-355-12	J2 BOARD	
61	1-627-356-13	J3 BOARD	
62	1-627-365-11	GA BOARD	
63	1-627-366-11	GB BOARD	
64	1-627-367-11	GC BOARD	
65	▲ 1-571-688-11	SWITCH SEESAW (AC POWER)	
66	▲ 1-540-066-11	AC INLET (3 P)	
67	X-4391-556-2	BASE ASSY (DDM-2802C/2802C2 only)	

Ref.No	Part No.	Description	Remark
68	4-394-596-01	SCREW (M5) TERMINAL (DDM-2802C/2802C2)	
69	4-322-508-02	PUSH BUTTON (DDM-2802C/2802C2 only)	
70	4-369-627-01	PUSH BUTTON (DDM-2802C/2801C2 only)	
71	4-344-710-00	KNOB CONTROL (DDM-2802C/2802C2 only)	
72	4-352-034-00	CATCH, PUSH (DDM-2802C/2802C2 only)	
73	4-355-703-11	POWER BUTTON (DDM-2802C/2802C2 only)	
74	4-371-801-01	KNOB (DDM-2802C/2802C2 only)	
75	4-391-588-11	LABEL CONTROL (DDM-2802C/2802C2 only)	
76	4-391-589-11	BRACKET (B) CONTROL (DDM-2802C/2802C2 only)	
77	4-391-592-11	PANEL CONTROL (DDM-2802C/2802C2 only)	
78	4-391-594-11	BRACKET (A) CONTROL (DDM-2802C/2802C2 only)	
79	4-391-586-11	DOOR (DDM-2802C/2802C2 only)	
80	*X-4391-563-1	COVER (T) ASSY, PCB	
81	*X-4391-560-1	COVER (E) ASSY, PCB	
82	*4-391-578-01	COVER (S), PCB	
83	*X-4391-562-1	COVER (P) ASSY, PCB	
84	*X-4391-561-1	COVER (R) ASSY, PCB	

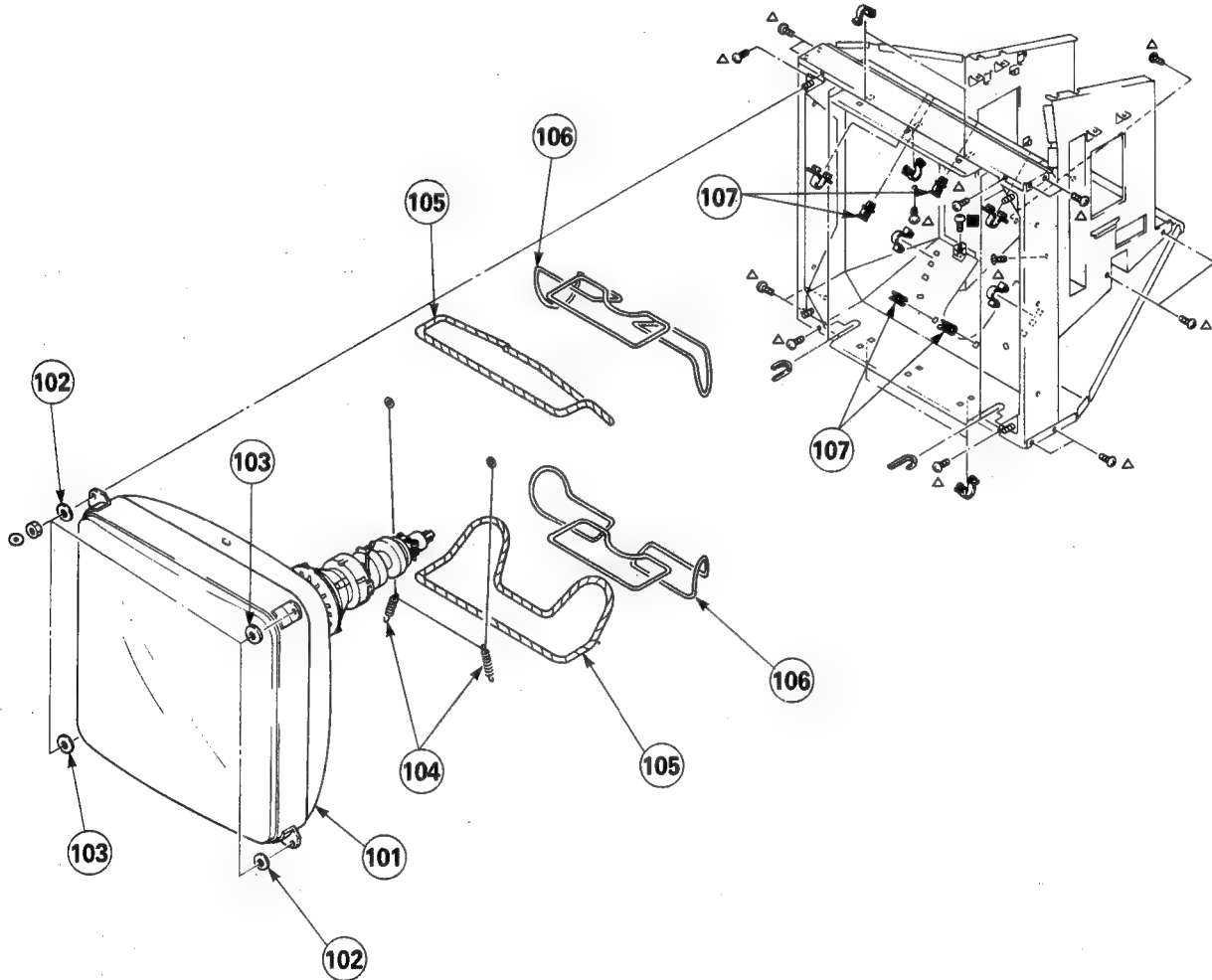
The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et par une marque Δ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

DDM-2801C/2802C
DDM-2801C2/2802C2

7-3. PICTURE TUBE

- N8 7-684-028-00
- BVTP3×8 7-685-646-79
- △ BVTP4×8 7-685-659-79
- ▽ PSW4×8 7-682-961-01



Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
101	△ *8-735-021-71	PICTURE TUBE		105	△ 1-426-390-11	COIL, DEMAGNETIZATION	
102	4-391-511-01	WASHER, PICTURE TUBE		106	1-426-389-11	COIL, LANDING CORRECTION	
103	4-391-512-01	WASHER, PICTURE		107	*4-322-922-00	HOLDER, COIL, DEGAUSSER	
104	4-369-318-00	SPRING, TENSION					

NOTE:

The components identified by shading and mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 8
ELECTRICAL PARTS LIST

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable
- There are some cases the reference number on one board overlaps on the other board. Therefore, when ordering parts by the reference number, please include the board name.

When indicating parts by reference number, please include the board name.

CAPACITORS

• MF : μ F, PF : μ F

COILS

• MMH : mH, UH : μ H

- The components identified by \square in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

Ref.No	Part No.	Description	Remark		
B BOARD, COMPLETE					

(DDM-2801C; Serial up-to No. 2,000,043)					
(DDM-2802C; Serial up-to No. 2,000,020)					
(DDM-2801C2; Serial up-to No. 2,000,049)					
(DDM-2802C2; Serial up-to No. 2,000,012)					
CAPACITOR					
C1	1-124-034-51	ELECT	33MF	20%	16V
C2	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C3	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C4	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C5	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C6	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C7	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C8	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C9	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C10	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C11	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C12	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C13	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C14	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C15	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C16	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C17	1-163-832-00	CERAMIC CHIP	0.1MF	10%	100V
C18	1-124-131-00	ELECT	47MF	20%	100V
C19	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C20	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V
C21	1-163-085-00	CERAMIC CHIP	2PF	0.25PF	50V
C22	1-163-832-00	CERAMIC CHIP	0.1MF	10%	100V
C23	1-163-832-00	CERAMIC CHIP	0.1MF	10%	100V
C24	1-163-832-00	CERAMIC CHIP	0.1MF	10%	100V
C25	1-126-111-11	ELECT	3.3MF	20%	100V
C26	1-124-798-11	ELECT	1MF	20%	160V
C27	1-124-798-11	ELECT	1MF	20%	160V
C28	1-124-798-11	ELECT	1MF	20%	160V
C29	1-124-791-11	ELECT	1MF	20%	100V
C30	1-124-791-11	ELECT	1MF	20%	100V
C31	1-124-791-11	ELECT	1MF	20%	100V
C32	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C33	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C34	1-123-321-00	ELECT	220MF	20%	16V
C35	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C36	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C37	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C38	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C39	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C40	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C41	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C42	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C43	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C44	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C45	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V

Ref.No	Part No.	Description	Remark		
C46	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C47	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C48	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C49	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C50	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C51	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C52	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C53	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C54	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C55	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C56	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C57	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C58	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C59	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C60	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C61	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C62	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C63	1-123-321-00	ELECT	220MF	20%	16V
C64	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C65	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C66	1-126-335-11	ELECT	220MF	20%	10V
C67	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C68	1-123-333-00	ELECT	100MF	20%	25V
C69	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C70	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C71	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C72	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C73	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C74	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C75	1-135-152-21	TANTAL. CHIP	1.5MF	20%	25V
C76	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C77	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C78	1-123-875-11	ELECT	10MF	20%	50V

CONNECTOR

CNB-1	*1-564-511-11	PLUG, CONNECTOR 8P
CNB-2	*1-564-513-11	PLUG, CONNECTOR 10P
CNB-3	*1-564-506-11	PLUG, CONNECTOR 3P
CNB-4	*1-564-513-11	PLUG, CONNECTOR 10P
CNB-5	*1-564-513-11	PLUG, CONNECTOR 10P
CNB-6	*1-564-513-11	PLUG, CONNECTOR 10P

DIODE

D1	8-719-105-82	DIODE RD5.1M-B2
D3	8-719-911-19	DIODE 1SS119
D4	8-719-901-83	DIODE 1SS83
D5	8-719-901-83	DIODE 1SS83
D6	8-719-901-83	DIODE 1SS83
D7	8-719-812-41	DIODE TLR124
D8	8-719-106-53	DIODE RD10M-B2
D9	8-719-800-76	DIODE 1SS226
D10	8-719-106-80	DIODE RD13M-B2
D11	8-719-106-80	DIODE RD13M-B2
D12	8-719-800-76	DIODE 1SS226
D13	8-719-101-97	DIODE 1SS97-1

Ref.No	Part No.	Description	Remark
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IC

IC1	8-759-906-75	IC 74F194PC	
IC2	8-759-935-13	IC SN74AS00N	
IC3	8-759-906-75	IC 74F194PC	
IC4	8-759-904-80	IC 74F04PC	
IC5	8-759-784-92	IC MB7118H-SG	
	* 1-526-656-00	SOCKET, IC (DP) 20P (IC5)	
IC6	8-759-935-16	IC SN74AS08N	
IC7	8-759-915-93	IC 74F163APC	
IC8	8-759-935-14	IC SN74AS02N	
IC9	8-759-915-93	IC 74F163APC	
IC10	8-759-935-13	IC SN74AS00N	
IC11	8-759-906-66	IC 74F86PC	
IC12	8-759-906-67	IC 74F109PC	
IC13	8-759-915-93	IC 74F163APC	
IC14	8-752-321-64	IC CXD1067P	
IC15	8-759-203-40	IC TC74HC393P	
IC16	8-759-002-44	IC MC74F521N	
IC17	8-759-202-74	IC TC74HC04P	
IC18	8-759-203-40	IC TC74HC393P	
IC19	8-752-321-64	IC CXD1067P	
IC20	8-759-202-32	IC TC74HC163P	
IC21	8-759-203-61	IC TC74HC688P	
IC22	8-759-203-21	IC TC74HC273P	
IC23	8-759-784-90	IC MBM27C64-25-SG	
	* 1-526-659-00	SOCKET, IC (DP) 28P (IC23)	
IC24	8-759-977-78	IC MB88342P	
IC25	8-759-145-58	IC UPC4558C	
IC26	8-759-145-58	IC UPC4558C	
IC27	8-759-145-58	IC UPC4558C	
IC28	8-759-202-11	IC TC74HC00P	
IC29	8-759-901-57	IC SN74LS157N	
IC30	8-759-206-68	IC TC40103BP	
IC31	8-759-202-86	IC TC74HC123P	
IC32	8-759-004-63	IC MC74HC125N	
IC33	8-759-208-17	IC TC4528BPHB	

JACK

J1	* 1-564-433-21	CONNECTOR, COAXIAL	
J2	* 1-564-433-21	CONNECTOR, COAXIAL	
J3	* 1-564-433-21	CONNECTOR, COAXIAL	
J4	1-526-575-00	SOCKET, PLUG 1P	
J5	1-526-575-00	SOCKET, PLUG 1P	

COIL

L1	1-410-470-11	INDUCTOR 10UH	
L2	1-421-421-00	COIL, CHOKE 100UH	
L3	1-421-421-00	COIL, CHOKE 100UH	
L4	1-421-421-00	COIL, CHOKE 100UH	
L5	1-410-468-11	INDUCTOR 6.8UH	

TRANSISTOR

Q1	8-729-920-65	TRANSISTOR DTC123EK	
Q3	8-729-100-66	TRANSISTOR 2SC1623	
Q4	8-729-216-22	TRANSISTOR 2SA1162	
Q5	8-729-100-66	TRANSISTOR 2SC1623	
Q6	8-729-216-22	TRANSISTOR 2SA1162	
Q7	8-729-100-66	TRANSISTOR 2SC1623	
Q8	8-729-216-22	TRANSISTOR 2SA1162	
Q9	8-729-105-08	TRANSISTOR 2SA1330	
Q10	8-729-891-02	TRANSISTOR 2SC2910	
Q11	8-729-105-08	TRANSISTOR 2SA1330	
Q12	8-729-105-08	TRANSISTOR 2SA1330	
Q13	8-729-920-45	TRANSISTOR VN1316N3	
Q14	8-729-100-66	TRANSISTOR 2SC1623	
Q15	8-729-105-68	TRANSISTOR 2SC3356	
Q16	8-729-105-68	TRANSISTOR 2SC3356	

Ref.No	Part No.	Description	Remark
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Q17	8-729-105-68	TRANSISTOR 2SC3356	
Q18	8-729-105-68	TRANSISTOR 2SC3356	
Q19	8-729-105-68	TRANSISTOR 2SC3356	
Q20	8-729-105-68	TRANSISTOR 2SC3356	
Q21	8-729-105-68	TRANSISTOR 2SC3356	
Q22	8-729-105-68	TRANSISTOR 2SC3356	
Q23	8-729-112-65	TRANSISTOR 2SA1462	

Q24	8-729-920-63	TRANSISTOR DTA123EK	
Q25	8-729-920-65	TRANSISTOR DTC123EK	
Q26	8-729-920-65	TRANSISTOR DTC123EK	

RESISTOR

R1	1-216-025-00	METAL GLAZE	100	5%	1/10W
R2	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R5	1-216-025-00	METAL GLAZE	100	5%	1/10W
R6	1-216-025-00	METAL GLAZE	100	5%	1/10W
R7	1-214-837-11	METAL	75	1%	1/2W
R8	1-214-837-11	METAL	75	1%	1/2W
R9	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R10	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R11	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R12	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R13	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R14	1-216-043-00	METAL GLAZE	560	5%	1/10W
R15	1-249-405-11	CARBON	100	5%	1/4W F
R16	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R17	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R18	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R19	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R20	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R21	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R22	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R23	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R24	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R25	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R26	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R27	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R28	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R29	1-216-461-00	METAL OXIDE	5.6K	5%	2W F
R30	1-216-438-11	METAL OXIDE	8.2K	5%	1W F
R31	1-249-397-11	CARBON	22	5%	1/4W
R32	1-249-397-11	CARBON	22	5%	1/4W
R33	1-249-397-11	CARBON	22	5%	1/4W
R34	1-249-437-11	CARBON	47K	5%	1/4W
R35	1-215-493-00	METAL	1M	1%	1/6W
R36	1-215-493-00	METAL	1M	1%	1/6W
R37	1-215-493-00	METAL	1M	1%	1/6W
R38	1-216-025-00	METAL GLAZE	100	5%	1/10W
R39	1-216-025-00	METAL GLAZE	100	5%	1/10W
R40	1-216-025-00	METAL GLAZE	100	5%	1/10W
R41	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R42	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R43	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R44	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R45	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R46	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R47	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R49	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R50	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R51	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R52	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R53	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R54	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R55	1-216-107-00	METAL GLAZE	270K	5%	1/10W
R56	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R57	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R58	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W

DDM-2801C/2802C DDM-2801C2/2802C2

B U

Ref.No	Part No.	Description	Remark
R59	1-216-107-00	METAL GLAZE 270K	5% 1/10W
R60	1-216-091-00	METAL GLAZE 56K	5% 1/10W
R61	1-216-093-00	METAL GLAZE 68K	5% 1/10W
R62	1-216-069-00	METAL GLAZE 6.8K	5% 1/10W
R63	1-216-093-00	METAL GLAZE 68K	5% 1/10W
R64	1-216-091-00	METAL GLAZE 56K	5% 1/10W
R65	1-216-107-00	METAL GLAZE 270K	5% 1/10W
R66	1-216-093-00	METAL GLAZE 68K	5% 1/10W
R67	1-215-453-00	METAL 22K	1% 1/6W
R68	1-215-453-00	METAL 22K	1% 1/6W
R69	1-215-453-00	METAL 22K	1% 1/6W
R70	1-216-049-00	METAL GLAZE 1K	5% 1/10W
R71	1-216-049-00	METAL GLAZE 1K	5% 1/10W
R72	1-216-081-00	METAL GLAZE 22K	5% 1/10W
R73	1-216-081-00	METAL GLAZE 22K	5% 1/10W
R74	1-216-049-00	METAL GLAZE 1K	5% 1/10W
R75	1-216-049-00	METAL GLAZE 1K	5% 1/10W
R76	1-216-081-00	METAL GLAZE 22K	5% 1/10W
R77	1-216-081-00	METAL GLAZE 22K	5% 1/10W
R78	1-216-081-00	METAL GLAZE 22K	5% 1/10W
R79	1-216-081-00	METAL GLAZE 22K	5% 1/10W
R80	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W
R81	1-216-065-00	METAL GLAZE 4.7K	5% 1/10W
R82	1-216-031-00	METAL GLAZE 180	5% 1/10W
R83	1-216-009-00	METAL GLAZE 22	5% 1/10W
R84	1-216-041-00	METAL GLAZE 470	5% 1/10W
R85	1-216-001-00	METAL GLAZE 10	5% 1/10W
R86	1-216-073-00	METAL GLAZE 10K	5% 1/10W
R87	1-216-027-00	METAL GLAZE 120	5% 1/10W
R88	1-216-041-00	METAL GLAZE 470	5% 1/10W
R89	1-216-043-00	METAL GLAZE 560	5% 1/10W
R90	1-216-053-00	METAL GLAZE 1.5K	5% 1/10W
R91	1-216-021-00	METAL GLAZE 68	5% 1/10W
R92	1-216-035-00	METAL GLAZE 270	5% 1/10W
R93	1-216-017-00	METAL GLAZE 47	5% 1/10W
R94	1-216-035-00	METAL GLAZE 270	5% 1/10W
R95	1-216-017-00	METAL GLAZE 47	5% 1/10W
R96	1-216-063-00	METAL GLAZE 3.9K	5% 1/10W
R97	1-216-017-00	METAL GLAZE 47	5% 1/10W
R98	1-216-081-00	METAL GLAZE 22K	5% 1/10W
R99	1-216-017-00	METAL GLAZE 47	5% 1/10W
R100	1-216-017-00	METAL GLAZE 47	5% 1/10W
R101	1-216-031-00	METAL GLAZE 180	5% 1/10W
R102	1-216-025-00	METAL GLAZE 100	5% 1/10W
R103	1-216-043-00	METAL GLAZE 560	5% 1/10W
R104	1-216-180-00	METAL GLAZE 180	5% 1/8W
R105	1-216-180-00	METAL GLAZE 180	5% 1/8W
R106	1-216-041-00	METAL GLAZE 470	5% 1/10W
R107	1-216-045-00	METAL GLAZE 680	5% 1/10W
R108	1-216-009-00	METAL GLAZE 22	5% 1/10W
R109	1-216-059-00	METAL GLAZE 2.7K	5% 1/10W
R110	1-216-206-00	METAL GLAZE 2.2K	5% 1/8W
R111	1-216-206-00	METAL GLAZE 2.2K	5% 1/8W
R112	1-216-025-00	METAL GLAZE 100	5% 1/10W
R113	1-216-041-00	METAL GLAZE 470	5% 1/10W
R114	1-216-081-00	METAL GLAZE 22K	5% 1/10W
R115	1-216-081-00	METAL GLAZE 22K	5% 1/10W
R117	1-216-017-00	METAL GLAZE 47	5% 1/10W
R118	1-216-093-00	METAL GLAZE 68K	5% 1/10W
R119	1-216-081-00	METAL GLAZE 22K	5% 1/10W
R120	1-216-017-00	METAL GLAZE 47	5% 1/10W
R121	1-216-017-00	METAL GLAZE 47	5% 1/10W
R122	1-216-037-00	METAL GLAZE 330	5% 1/10W
R123	1-216-057-00	METAL GLAZE 2.2K	5% 1/10W
R124	1-216-073-00	METAL GLAZE 10K	5% 1/10W

Ref.No	Part No.	Description	Remark
R125	1-216-073-00	METAL GLAZE 10K	5% 1/10W
R127	1-216-029-00	METAL GLAZE 150	5% 1/10W
VARIABLE RESISTOR			
RV1	1-237-518-21	RES, ADJ, CERMET 10K	
RV2	1-237-515-21	RES, ADJ, CERMET 1K	
RV3	1-237-513-21	RES, ADJ, CERMET 200	
RV4	1-237-517-21	RES, ADJ, CERMET 5K	
SWITCH			
SW1	1-571-428-11	SWITCH, SLIDE	
THERMISTOR			
TH-1	1-800-279-21	THERMISTOR 5.0K	
CRYSTAL			
X1	1-577-212-11	VIBRATOR, CRYSTAL	

U BOARD, COMPLETE			

(DDM-2801C; Serial up-to No. 2,000,043)			
(DDM-2802C; Serial up-to No. 2,000,020)			
(DDM-2801C2; Serial up-to No. 2,000,049)			
(DDM-2802C2; Serial up-to No. 2,000,012)			
CAPACITOR			
C1	1-135-152-21	TANTAL CHIP 1.5MF	10% 25V
C2	1-135-152-21	TANTAL CHIP 1.5MF	10% 25V
C3	1-135-152-21	TANTAL CHIP 1.5MF	10% 25V
C4	1-135-152-21	TANTAL CHIP 1.5MF	10% 25V
CONNECTOR			
CNU-4*1-564-511-11		PLUG, CONNECTOR 8P	
CNU-5*1-564-505-11		PLUG, CONNECTOR 2P	
CNU-6*1-564-513-11		PLUG, CONNECTOR 10P	
FILTER			
CP2	1-236-071-11	ENCAPSULATED COMPONENT	
CP3	1-236-071-11	ENCAPSULATED COMPONENT	
CP4	1-236-071-11	ENCAPSULATED COMPONENT	
CP5	1-236-071-11	ENCAPSULATED COMPONENT	
CP6	1-236-071-11	ENCAPSULATED COMPONENT	
CP7	1-236-071-11	ENCAPSULATED COMPONENT	
CP8	1-236-071-11	ENCAPSULATED COMPONENT	
CP9	1-236-071-11	ENCAPSULATED COMPONENT	
CP11	1-236-129-11	ENCAPSULATED COMPONENT	
CP12	1-236-129-11	ENCAPSULATED COMPONENT	
CP13	1-236-129-11	ENCAPSULATED COMPONENT	
CP14	1-236-129-11	ENCAPSULATED COMPONENT	
CP15	1-236-129-11	ENCAPSULATED COMPONENT	
CP16	1-236-129-11	ENCAPSULATED COMPONENT	
IC			
IC1	8-759-929-62	IC LM7812CT	
	*4-381-906-01	SPRING (F) (IC1)	
	4-391-519-01	SHEET (E), INSULATOR (IC1)	
IC2	8-759-929-65	IC LM7912CT	
	*4-381-906-01	SPRING (F) (IC2)	
	4-391-519-01	SHEET (E), INSULATOR (IC2)	

Ref.No	Part No.	Description	Remark
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B BOARD COMPLETE

DDM-2801C; Serial No. 2,000,044 and higher
DDM-2802C; Serial No. 2,000,021 and higher
DDM-2801C2; Serial No. 2,000,050 and higher
DDM-2802C2; Serial No. 2,000,013 and higher

CAPACITOR

C1	1-124-034-51	ELECT	33MF	20%	16V
C2	1-135-152-21	TANTAL CHIP	1.5MF	20%	25V
C3	1-135-152-21	TANTAL CHIP	1.5MF	20%	25V
C4	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C5	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C6	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C7	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C8	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C9	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C10	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C11	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C12	1-135-152-21	TANTAL CHIP	1.5MF	20%	25V
C13	1-135-152-21	TANTAL CHIP	1.5MF	20%	25V
C14	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C15	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C16	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C17	1-163-832-00	CERAMIC CHIP	0.1MF	10%	100V
C18	1-124-131-00	ELECT	47MF	20%	100V
C19	1-135-152-21	TANTAL CHIP	1.5MF	20%	25V
C21	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C22	1-163-832-00	CERAMIC CHIP	0.1MF	10%	100V
C23	1-163-832-00	CERAMIC CHIP	0.1MF	10%	100V
C24	1-163-832-00	CERAMIC CHIP	0.1MF	10%	100V
C25	1-126-111-11	ELECT	3.3MF	20%	100V
C26	1-124-798-11	ELECT	1MF	20%	160V
C27	1-124-798-11	ELECT	1MF	20%	160V
C28	1-124-798-11	ELECT	1MF	20%	160V
C29	1-124-791-11	ELECT	1MF	20%	100V
C30	1-124-791-11	ELECT	1MF	20%	100V
C31	1-124-791-11	ELECT	1MF	20%	100V
C32	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C33	1-135-152-21	TANTAL CHIP	1.5MF	20%	25V
C34	1-123-321-00	ELECT	220MF	20%	16V
C35	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C36	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C38	1-135-152-21	TANTAL CHIP	1.5MF	20%	25V
C39	1-135-152-21	TANTAL CHIP	1.5MF	20%	25V
C40	1-135-152-21	TANTAL CHIP	1.5MF	20%	25V
C48	1-135-152-21	TANTAL CHIP	1.5MF	20%	25V
C61	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C62	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C63	1-123-321-00	ELECT	220MF	20%	16V
C64	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C65	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C66	1-126-335-11	ELECT	220MF	20%	10V
C67	1-135-092-21	TANTAL CHIP	3.3MF	20%	16V

Ref.No	Part No.	Description	Remark
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C68	1-124-122-11	ELECT	100MF	20%	25V
C69	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C70	1-135-092-21	TANTAL CHIP	3.3MF	20%	16V
C71	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C72	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C73	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C74	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C75	1-135-152-21	TANTAL CHIP	1.5MF	20%	25V
C76	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C78	1-123-875-11	ELECT	10MF	20%	50V

PLUG

CNB-1	*1-564-511-11	CONNECTOR PLUG 8P
CNB-2	*1-564-513-11	CONNECTOR PLUG 10P
CNB-3	*1-564-506-11	CONNECTOR PLUG 3P
CNB-4	*1-564-513-11	CONNECTOR PLUG 10P
CNB-5	*1-564-513-11	CONNECTOR PLUG 10P
CNB-6	*1-564-513-11	CONNECTOR PLUG 10P

DIODE

D1	8-719-105-82	DIODE RD5.1M-B2
D3	8-719-911-19	DIODE 1SS119
D4	8-719-901-83	DIODE 1SS83
D5	8-719-901-83	DIODE 1SS83
D6	8-719-901-83	DIODE 1SS83
D7	8-719-812-41	DIODE TLR124
D8	8-719-106-53	DIODE RD10M-B2
D9	8-719-800-76	DIODE 1SS226
D10	8-719-106-80	DIODE RD13M-B2
D11	8-719-106-80	DIODE RD13M-B2
D12	8-719-800-76	DIODE 1SS226

IC

IC1	8-752-335-54	IC CXD2007S
IC2	8-759-935-13	IC SN74AS00N
IC8	8-759-935-23	IC SN74AS32N
IC11	8-759-906-66	IC 74F86PC
IC24	8-759-977-78	IC MB88342P
IC25	8-759-145-58	IC UPC4558C
IC26	8-759-145-58	IC UPC4558C
IC27	8-759-145-58	IC UPC4558C
IC28	8-759-202-11	IC TC74HC00P
IC29	8-759-901-57	IC SN74LS157N
IC30	8-759-206-68	IC TC40103BP
IC31	8-759-202-86	IC TC74HC123P
IC32	8-759-004-63	IC MC74HC125N
IC33	8-759-208-17	IC TC4528BPHB

CONNECTOR

J1	*1-564-433-21	CONNECTOR, COAXIAL
J2	*1-564-433-21	CONNECTOR, COAXIAL
J3	*1-564-433-21	CONNECTOR, COAXIAL
J4	1-526-575-00	SOCKET PLUG 1P
J5	1-526-575-00	SOCKET PLUG 1P

DDM-2801C/2802C
DDM-2801C2/2802C2

B

Ref.No	Part No.	Description	Remark
<u>COIL</u>			
L1	1-410-470-11	INDUCTOR	10UH
L2	1-421-421-00	COIL CHOKE	100UH
L3	1-421-421-00	COIL CHOKE	100UH
L4	1-421-421-00	COIL CHOKE	100UH
L5	1-410-468-11	INDUCTOR	6.8UH
<u>TRANSISTOR</u>			
Q1	8-729-920-65	TRANSISTOR	DTC123EK
Q3	8-729-100-66	TRANSISTOR	2SC1623
Q4	8-729-216-22	TRANSISTOR	2SA1162
Q5	8-729-100-66	TRANSISTOR	2SC1623
Q6	8-729-216-22	TRANSISTOR	2SA1162
Q7	8-729-100-66	TRANSISTOR	2SC1623
Q8	8-729-216-22	TRANSISTOR	2SA1162
Q9	8-729-105-08	TRANSISTOR	2SA1330
Q10	8-729-891-02	TRANSISTOR	2SC2910
Q11	8-729-105-08	TRANSISTOR	2SA1330
Q12	8-729-105-08	TRANSISTOR	2SA1330
Q13	8-729-920-45	TRANSISTOR	VN1316N3
Q14	8-729-100-66	TRANSISTOR	2SC1623
Q15	8-729-105-68	TRANSISTOR	2SC3356
Q16	8-729-105-68	TRANSISTOR	2SC3356
Q17	8-729-105-68	TRANSISTOR	2SC3356
Q18	8-729-105-68	TRANSISTOR	2SC3356
Q19	8-729-105-68	TRANSISTOR	2SC3356
Q20	8-729-105-68	TRANSISTOR	2SC3356
Q21	8-729-105-68	TRANSISTOR	2SC3356
Q22	8-729-105-68	TRANSISTOR	2SC3356
Q23	8-729-112-65	TRANSISTOR	2SA1462
Q24	8-729-920-63	TRANSISTOR	DTA123EK
Q25	8-729-920-65	TRANSISTOR	DTC123EK
Q26	8-729-920-65	TRANSISTOR	DTC123EK
Q27	8-729-920-65	TRANSISTOR	DTC123EK
<u>RESISTOR</u>			
R1	1-216-025-00	METAL GLAZE	100 5% 1/10W
R2	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R5	1-216-025-00	METAL GLAZE	100 5% 1/10W
R6	1-216-025-00	METAL GLAZE	100 5% 1/10W
R7	1-214-837-11	METAL	75 1% 1/2W
R8	1-214-837-11	METAL	75 1% 1/2W
R9	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R10	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R11	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R12	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R13	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R14	1-216-043-00	METAL GLAZE	560 5% 1/10W
R15	1-249-405-11	CARBON	100 5% 1/4W F
R16	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R17	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R18	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R19	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R20	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R21	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R22	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R23	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R24	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R25	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R26	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R27	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R29	1-216-461-00	METAL OXIDE	5.6K 5% 2W F
R30	1-216-438-11	METAL OXIDE	8.2K 5% 1W F
R31	1-249-397-11	CARBON	22 5% 1/4W
R32	1-249-397-11	CARBON	22 5% 1/4W

Ref.No	Part No.	Description	Remark
R33	1-249-397-11	CARBON	22 5% 1/4W
R34	1-249-437-11	CARBON	47K 5% 1/4W
R35	1-215-493-00	METAL	1M 1% 1/6W
R36	1-215-493-00	METAL	1M 1% 1/6W
R37	1-215-493-00	METAL	1M 1% 1/6W
R38	1-216-025-00	METAL GLAZE	100 5% 1/10W
R39	1-216-025-00	METAL GLAZE	100 5% 1/10W
R40	1-216-025-00	METAL GLAZE	100 5% 1/10W
R41	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W
R42	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R43	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R44	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R45	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R46	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R47	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R49	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R50	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R51	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R52	1-216-093-00	METAL GLAZE	68K 5% 1/10W
R53	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R54	1-216-091-00	METAL GLAZE	56K 5% 1/10W
R55	1-216-107-00	METAL GLAZE	270K 5% 1/10W
R56	1-216-093-00	METAL GLAZE	68K 5% 1/10W
R57	1-216-093-00	METAL GLAZE	68K 5% 1/10W
R58	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R59	1-216-107-00	METAL GLAZE	270K 5% 1/10W
R60	1-216-091-00	METAL GLAZE	56K 5% 1/10W
R61	1-216-093-00	METAL GLAZE	68K 5% 1/10W
R62	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W
R63	1-216-093-00	METAL GLAZE	68K 5% 1/10W
R64	1-216-091-00	METAL GLAZE	56K 5% 1/10W
R65	1-216-107-00	METAL GLAZE	270K 5% 1/10W
R66	1-216-093-00	METAL GLAZE	68K 5% 1/10W
R67	1-215-453-00	METAL	22K 1% 1/6W
R68	1-215-453-00	METAL	22K 1% 1/6W
R69	1-215-453-00	METAL	22K 1% 1/6W
R70	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R71	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R72	1-216-017-00	METAL GLAZE	47 5% 1/10W
R73	1-216-017-00	METAL GLAZE	47 5% 1/10W
R76	1-216-001-00	METAL GLAZE	10 5% 1/10W
R80	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R81	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R83	1-216-009-00	METAL GLAZE	22 5% 1/10W
R84	1-216-041-00	METAL GLAZE	470 5% 1/10W
R85	1-216-029-00	METAL GLAZE	150 5% 1/10W
R86	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R87	1-216-027-00	METAL GLAZE	120 5% 1/10W
R88	1-216-035-00	METAL GLAZE	270 5% 1/10W
R89	1-216-043-00	METAL GLAZE	560 5% 1/10W
R90	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W
R91	1-216-021-00	METAL GLAZE	68 5% 1/10W
R92	1-216-035-00	METAL GLAZE	270 5% 1/10W
R93	1-216-017-00	METAL GLAZE	47 5% 1/10W
R94	1-216-035-00	METAL GLAZE	270 5% 1/10W
R95	1-216-017-00	METAL GLAZE	47 5% 1/10W
R96	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W
R97	1-216-017-00	METAL GLAZE	47 5% 1/10W
R98	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R99	1-216-017-00	METAL GLAZE	47 5% 1/10W
R100	1-216-017-00	METAL GLAZE	47 5% 1/10W
R101	1-216-031-00	METAL GLAZE	180 5% 1/10W
R102	1-216-025-00	METAL GLAZE	100 5% 1/10W
R103	1-216-043-00	METAL GLAZE	560 5% 1/10W
R104	1-216-180-00	METAL GLAZE	180 5% 1/8W

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Ref.No	Part No.	Description	Remark			
R105	1-216-180-00	METAL GLAZE	180	5%	1/8W	
R106	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R107	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R108	1-216-009-00	METAL GLAZE	22	5%	1/10W	
R109	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R110	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W	
R111	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W	
R112	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R113	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R114	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R115	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R117	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R118	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R119	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R120	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R121	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R124	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R125	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R126	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R127	1-216-029-00	METAL GLAZE	150	5%	1/10W	
R128	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
<u>VARIABLE RESISTOR</u>						
RV1	1-237-518-21	RES, ADJ, CERMET	10K	(H.BLK WIDTH)		
RV2	1-237-515-21	RES, ADJ, CERMET	1K	(H.SYNC. TIMING)		
RV3	1-237-513-21	RES, ADJ, CERMET	200	(OUTPUT LEVEL)		
RV4	1-237-517-21	RES, ADJ, CERMET	5K	(GRAY LEVEL)		
<u>SWITCH</u>						
SW1	1-571-428-11	SWITCH, SLIDE				
<u>THERMISTOR</u>						
TH-1	1-800-279-21	THERMISTOR	5.0K			
<u>CRYSTAL</u>						
X1	1-577-212-11	VIBRATOR, CRYSTAL				

A BOARD, COMPLETE						

	1-628-305-21	AB, BOARD				
*	1-629-851-11	AA, BOARD				
	4-391-550-01	SCREW (M5X15) (A), LOCK				
	4-826-537-11	WASHER, SPECIAL				
<u>CAPACITOR</u>						
C1	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C2	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C3	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C4	1-135-092-21	TANTAL CHIP	3.3MF	10%	16V	
C5	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C6	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C7	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C8	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V	
C9	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C11	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C12	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C13	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V	
C15	1-135-145-11	TANTAL CHIP	0.47MF	10%	25V	
C16	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C17	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C18	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	
C19	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V	

Ref.No	Part No.	Description	Remark		
C20	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C21	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C22	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C23	1-135-145-11	TANTAL CHIP	0.47MF	10%	25V
C24	1-135-085-21	TANTAL CHIP	4.7MF	10%	25V
C25	1-135-152-21	TANTAL CHIP	1.5MF	10%	25V
C26	1-135-085-21	TANTAL CHIP	4.7MF	10%	25V
C27	1-126-103-11	ELECT	470MF	20%	16V
C28	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C29	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C30	1-135-152-21	TANTAL CHIP	1.5MF	10%	25V
C31	1-135-091-00	TANTAL CHIP	1MF	10%	16V
C33	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C34	1-163-077-00	CERAMIC CHIP	0.1MF	10%	25V
C35	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C36	1-135-085-21	TANTAL CHIP	4.7MF	10%	25V
C37	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C38	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C40	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C41	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C42	1-135-085-21	TANTAL CHIP	4.7MF	10%	25V
C43	1-135-145-11	TANTAL CHIP	0.47MF	10%	25V
C44	1-123-605-00	ELECT	100MF	20%	100V
C45	1-163-832-00	CERAMIC CHIP	0.1MF	10%	100V
C48	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C49	1-126-111-11	ELECT	3.3MF	20%	100V
C51	1-135-085-21	TANTAL CHIP	4.7MF	10%	25V
C52	1-135-152-21	TANTAL CHIP	1.5MF	10%	25V
C53	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C60	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C61	1-163-083-00	CERAMIC CHIP	1PF	0.25PF	50V
<u>DIODE</u>					
D1	8-719-100-05	DIODE 1S2837			
D2	8-719-105-91	DIODE RD5.6M-B2			
D3	8-719-100-05	DIODE 1S2837			
D4	8-719-106-35	DIODE RD8.2M-B2			
D5	8-719-100-05	DIODE 1S2837			
D6	8-719-106-35	DIODE RD8.2M-B2			
D7	8-719-106-17	DIODE RD6.8M-B2			
D8	8-719-812-41	DIODE TLR124			
<u>COMPOSITION CIRCUIT BLOCK</u>					
DB1	1-233-170-11	COMPOSITION CIRCUIT BLOCK			
DB2	1-233-169-11	COMPOSITION CIRCUIT BLOCK			
<u>IC</u>					
IC1	8-759-141-05	IC UPC4574G2			
IC2	8-759-100-97	IC UPC339G2			
<u>CONNECTOR</u>					
J1	*1-564-433-21	CONNECTOR, COAXIAL			
J2	*1-564-433-21	CONNECTOR, COAXIAL			
<u>TRANSISTOR</u>					
Q1	8-729-105-68	TRANSISTOR 2SC3356-K			
Q2	8-729-105-68	TRANSISTOR 2SC3356-K			
Q3	8-729-105-68	TRANSISTOR 2SC3356-K			
Q4	8-729-105-68	TRANSISTOR 2SC3356-K			
Q5	8-729-105-68	TRANSISTOR 2SC3356-K			
Q6	8-729-105-68	TRANSISTOR 2SC3356-K			
Q7	8-729-105-59	TRANSISTOR 2SC3357-HFE			
Q8	8-729-105-68	TRANSISTOR 2SC3356-K			
Q9	8-729-129-54	TRANSISTOR 2SC2954-T1			
Q10	8-729-105-59	TRANSISTOR 2SC3357-HFE			

DDM-2801C/2802C

DDM-2801C2/2802C2

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Ref.No	Part No.	Description	Remark
Q11	8-729-103-72	TRANSISTOR 2SD1005	
Q12	8-729-100-66	TRANSISTOR 2SC1623	
Q13	8-729-104-26	TRANSISTOR 2SB804-AW	
Q14	8-729-100-66	TRANSISTOR 2SC1623	
Q15	8-729-116-05	TRANSISTOR 2SK160-K5	
Q16	8-729-116-05	TRANSISTOR 2SK160-K5	
Q17	8-729-100-66	TRANSISTOR 2SC1623	
Q18	8-729-116-05	TRANSISTOR 2SK160-K5	
Q19	8-729-230-77	TRANSISTOR 2SC4200	
	4-391-502-01	INSULATOR : (Q19)	
	7-682-951-01	SCREW +PSW 3X14 : (Q19)	
Q20	8-729-320-58	TRANSISTOR 2SK1197	
	4-391-502-01	INSULATOR : (Q20)	
	7-682-951-01	SCREW +PSW 3X14 : (Q20)	
RESISTOR			
R1	1-216-627-11	METAL CHIP 100 0.50%	1/10W
R2	1-216-627-11	METAL CHIP 100 0.50%	1/10W
R3	1-216-017-00	METAL GLAZE 47 5%	1/10W
R4	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R5	1-216-025-00	METAL GLAZE 100 5%	1/10W
R6	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R7	1-216-033-00	METAL GLAZE 220 5%	1/10W
R8	1-216-009-00	METAL GLAZE 22 5%	1/10W
R9	1-216-025-00	METAL GLAZE 100 5%	1/10W
R10	1-216-021-00	METAL GLAZE 68 5%	1/10W
R11	1-216-045-00	METAL GLAZE 680 5%	1/10W
R12	1-216-047-00	METAL GLAZE 820 5%	1/10W
R13	1-216-045-00	METAL GLAZE 680 5%	1/10W
R14	1-216-033-00	METAL GLAZE 220 5%	1/10W
R15	1-216-017-00	METAL GLAZE 47 5%	1/10W
R16	1-216-037-00	METAL GLAZE 330 5%	1/10W
R17	1-216-029-00	METAL GLAZE 150 5%	1/10W
R18	1-216-190-00	METAL GLAZE 470 5%	1/8W
R19	1-216-190-00	METAL GLAZE 470 5%	1/8W
R20	1-216-017-00	METAL GLAZE 47 5%	1/10W
R21	1-216-174-00	METAL GLAZE 100 5%	1/8W
R22	1-216-025-00	METAL GLAZE 100 5%	1/10W
R23	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R24	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R25	1-216-017-00	METAL GLAZE 47 5%	1/10W
R26	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R27	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R28	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
R29	1-216-170-00	METAL GLAZE 68 5%	1/8W
R30	1-216-017-00	METAL GLAZE 47 5%	1/10W
R31	1-216-017-00	METAL GLAZE 47 5%	1/10W
R32	1-216-077-00	METAL GLAZE 15K 5%	1/10W
R33	1-216-121-00	METAL GLAZE 1M 5%	1/10W
R34	1-216-121-00	METAL GLAZE 1M 5%	1/10W
R35	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R36	1-216-025-00	METAL GLAZE 100 5%	1/10W
R37	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R38	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R39	1-216-033-00	METAL GLAZE 220 5%	1/10W
R40	1-216-025-00	METAL GLAZE 100 5%	1/10W
R41	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R42	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R43	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R44	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R45	1-216-121-00	METAL GLAZE 1M 5%	1/10W
R46	1-247-732-11	CARBON 27 5%	1/2W F
R47	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R48	1-216-005-00	METAL GLAZE 15 5%	1/10W
R49	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
R50	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W

Ref.No	Part No.	Description	Remark
R51	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R52	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R53	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R54	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R55	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R56	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R57	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R58	1-216-001-00	METAL GLAZE 10 5%	1/10W
R60	1-216-027-00	METAL GLAZE 120 5%	1/10W
R61	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R62	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R63	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R64	1-216-019-00	METAL GLAZE 56 5%	1/10W
R67	1-216-121-00	METAL GLAZE 1M 5%	1/10W
R68	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R69	1-247-735-11	CARBON 47 5%	1/2W F
R70	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
R71	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R72	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R80	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R81	1-216-007-00	METAL GLAZE 18 5%	1/10W
R82	1-216-007-00	METAL GLAZE 18 5%	1/10W
R83	1-216-007-00	METAL GLAZE 18 5%	1/10W
R84	1-216-007-00	METAL GLAZE 18 5%	1/10W
R85	1-216-007-00	METAL GLAZE 18 5%	1/10W
R86	1-216-007-00	METAL GLAZE 18 5%	1/10W
R87	1-216-007-00	METAL GLAZE 18 5%	1/10W
R88	1-216-007-00	METAL GLAZE 18 5%	1/10W
R89	1-216-007-00	METAL GLAZE 18 5%	1/10W
R90	1-216-007-00	METAL GLAZE 18 5%	1/10W

VARIABLE RESISTOR

RV1	1-230-867-11	RES. ADJ. GLAZE 1K (BIAS)
RV2	1-230-869-11	RES. ADJ. GLAZE 4.7K (VGG)

M BOARD, COMPLETE

CAPACITOR

C1	1-102-074-00	CERAMIC	0.001MF	10%	50V
C2	1-102-074-00	CERAMIC	0.001MF	10%	50V
C3	1-136-161-00	FILM	0.047MF	5%	50V
C4	1-136-161-00	FILM	0.047MF	5%	50V

PLUG

CNM-1	*1-564-516-11	PLUG CONNECTOR 13P
CNM-2	*1-564-507-11	PLUG CONNECTOR 4P
CNM-3	*1-564-512-11	PLUG CONNECTOR 9P
CNM-4	*1-564-513-11	PLUG CONNECTOR 10P
CNM-5	*1-564-514-11	PLUG CONNECTOR 11P
CNM-6	*1-564-515-11	PLUG CONNECTOR 12P
CNM-8	*1-564-507-11	PLUG CONNECTOR 4P
CNM-9	*1-564-511-11	PLUG CONNECTOR 8P
CNM-9	*1-564-515-11	PLUG CONNECTOR 12P
CNM-10	*1-566-984-11	RECEPTACLE, MULTI CONNECTOR 100P
CNM-11	*1-566-985-11	RECEPTACLE, MULTI CONNECTOR 100P

Ref.No	Part No.	Description	Remark		
M1 BOARD, COMPLETE					

	3-721-912-01	LEVER, BOARD			
	4-378-915-01	NUT (M2.6), PLATE			
CAPACITOR					
C1	1-124-122-11	ELECT	100MF	20%	25V
C2	1-124-122-11	ELECT	100MF	20%	25V
C3	1-124-122-11	ELECT	100MF	20%	25V
C4	1-124-122-11	ELECT	100MF	20%	25V
C5	1-124-122-11	ELECT	100MF	20%	25V
C6	1-124-122-11	ELECT	100MF	20%	25V
C7	1-128-078-11	ELECT	33MF	20%	25V
C8	1-136-165-00	FILM	0.1MF	5%	50V
C9	1-124-126-00	ELECT	47MF	20%	25V
C10	1-101-880-00	CERAMIC	47PF	5%	50V
C11	1-136-153-00	FILM	0.01MF	5%	50V
C12	1-101-880-00	CERAMIC	47PF	5%	50V
C13	1-136-153-00	FILM	0.01MF	5%	50V
DDM-2801C; Serial No.2,000,006~2,000,038					
DDM-2802C; Serial No. 2,000,001~2,000,014					
DDM-2801C2; Serial No. 2,000,004~2,000,048					
DDM-2802C2; Serial No. 2,000,002~2,000,005					
C13	1-136-161-00	FILM	0.047MF	5%	50V
DDM-2801C; Serial No. 2,000,039 and higher					
DDM-2802C; Serial No. 2,000,015 and higher					
DDM-2801C2; Serial No. 2,000,049 and higher					
DDM-2802C2; Serial No. 2,000,006 and higher					
C14	1-136-153-00	FILM	0.01MF	5%	50V
C16	1-101-004-00	CERAMIC	0.01MF		50V
C17	1-131-368-00	TANTAL	3.3MF	10%	16V
C18	1-131-368-00	TANTAL	3.3MF	10%	16V
C19	1-131-368-00	TANTAL	3.3MF	10%	16V
C20	1-131-368-00	TANTAL	3.3MF	10%	16V
C21	1-131-368-00	TANTAL	3.3MF	10%	16V
C22	1-101-004-00	CERAMIC	0.01MF		50V
C23	1-101-004-00	CERAMIC	0.01MF		50V
C24	1-101-004-00	CERAMIC	0.01MF		50V
C25	1-131-368-00	TANTAL	3.3MF	10%	16V
C26	1-131-368-00	TANTAL	3.3MF	10%	16V
C27	1-131-368-00	TANTAL	3.3MF	10%	16V
C28	1-101-004-00	CERAMIC	0.01MF		50V
C29	1-101-004-00	CERAMIC	0.01MF		50V
C30	1-101-004-00	CERAMIC	0.01MF		50V
C32	1-101-004-00	CERAMIC	0.01MF		50V
C34	1-101-004-00	CERAMIC	0.01MF		50V
C35	1-101-004-00	CERAMIC	0.01MF		50V
C36	1-101-004-00	CERAMIC	0.01MF		50V
C38	1-101-004-00	CERAMIC	0.01MF		50V
C39	1-123-875-11	ELECT	10MF	20%	50V
C40	1-123-875-11	ELECT	10MF	20%	50V
C41	1-102-973-00	CERAMIC	100PF	5%	50V
C42	1-101-004-00	CERAMIC	0.01MF		50V
C44	1-101-004-00	CERAMIC	0.01MF		50V
C45	1-101-004-00	CERAMIC	0.01MF		50V
C48	1-136-161-00	FILM	0.047MF	5%	50V
C49	1-102-824-00	CERAMIC	470PF	5%	50V
C50	1-136-161-00	FILM	0.047MF	5%	50V
C51	1-124-126-00	ELECT	47MF	20%	25V
C52	1-124-767-00	ELECT	2.2MF	20%	50V
C53	1-124-126-00	ELECT	47MF	20%	25V
C54	1-136-165-00	FILM	0.1MF	5%	50V
C55	1-124-126-00	ELECT	47MF	20%	25V
C56	1-101-880-00	CERAMIC	47PF	5%	50V
C57	1-101-880-00	CERAMIC	47PF	5%	50V

Ref.No	Part No.	Description	Remark		
C58	1-101-880-00	CERAMIC	47PF	5%	50V
C59	1-101-880-00	CERAMIC	47PF	5%	50V
C60	1-123-875-11	ELECT	10MF	20%	50V
C61	1-136-171-00	FILM	0.33MF	5%	50V
C62	1-136-161-00	FILM	0.047MF	5%	50V
C63	1-136-165-00	FILM	0.1MF	5%	50V
C64	1-102-074-00	CERAMIC	0.001MF	10%	50V
C65	1-136-165-00	FILM	0.1MF	5%	50V
C66	1-136-161-00	FILM	0.047MF	5%	50V
C67	1-136-171-00	FILM	0.33MF	5%	50V
C68	1-136-165-00	FILM	0.1MF	5%	50V
C69	1-123-875-11	ELECT	10MF	20%	50V
C70	1-136-165-00	FILM	0.1MF	5%	50V
C71	1-124-126-00	ELECT	47MF	20%	25V

CONNECTOR

M1-1 *1-566-986-11 CONNECTOR, MULTI 100P

DIODE

D1	8-719-911-19	DIODE	1SS119
D2	8-719-911-19	DIODE	1SS119
D3	8-719-911-19	DIODE	1SS119
D4	8-719-109-57	DIODE	RD2.4ESB2
D5	8-719-911-19	DIODE	1SS119
D6	8-719-911-19	DIODE	1SS119
D7	8-719-911-19	DIODE	1SS119
D8	8-719-911-19	DIODE	1SS119
D9	8-719-911-19	DIODE	1SS119
D10	8-719-109-81	DIODE	RD4.7ESB2
D11	8-719-109-81	DIODE	RD4.7ESB2
D12	8-719-109-81	DIODE	RD4.7ESB2
D13	8-719-109-57	DIODE	RD2.4ESB2
DDM-2801C; Serial No. 2,000,039 and higher DDM-2802C; Serial No. 2,000,015 and higher DDM-2801C2; Serial No. 2,000,049 and higher DDM-2802C2; Serial No. 2,000,006 and higher			

ND1 8-719-980-30 LED DIODE GL-8D03D

IC

IC1	8-759-208-40	IC	TMPZ84C00AP-6
	1-526-662-21	IC	SOCKET, IC (DP) 40P, (IC1)
IC2	8-759-939-22	IC	Z84C3006PSC
IC3	8-759-922-95	IC	MSM82CS1ARS
IC4	8-759-746-86	IC	27C128-25
	1-526-659-00	IC	SOCKET, IC (DP) 28P, (IC4)
IC5	8-752-331-22	IC	CXK5864BSP-10L
IC6	8-752-331-22	IC	CXK5864BSP-10L
IC7	8-759-748-05	IC	UPD28C64C-20
	1-526-659-00	IC	SOCKET, IC (DP) 28P, (IC7)
IC8	8-759-748-05	IC	UPD28C64C-20
	1-526-659-00	IC	SOCKET, IC (DP) 28P, (IC8)
IC9	8-759-917-43	IC	SN74HC138N
IC10	8-759-916-49	IC	SN74HC154NT
IC11	8-759-916-79	IC	SN74HC273N
IC12	8-759-916-29	IC	SN74HC74N
IC13	8-759-916-71	IC	SN74HC244N
IC14	8-759-916-71	IC	SN74HC244N
IC15	8-759-921-34	IC	SN74HC245N
IC16	8-759-203-34	IC	TC74HC368P
IC17	8-759-916-92	IC	SN74HC367N
IC18	8-759-916-92	IC	SN74HC367N
IC19	8-759-803-70	IC	LC74HC08
IC20	8-759-916-25	IC	SN74HC32N
IC21	8-759-916-25	IC	SN74HC32N
IC22	8-759-916-12	IC	SN74HC00N
IC23	8-759-916-20	IC	SN74HC14N

DDM-2801C/2802C DDM-2801C2/2802C2

M1

Ref.No	Part No.	Description	Remark
IC24	8-759-916-20	IC SN74HC14N	
IC25	8-759-908-35	IC TL7705CP-B	
IC26	8-759-008-57	IC MC34051P	
IC27	8-759-916-50	IC SN74HC157N	
IC28	8-759-007-18	IC MC74HC4046N	
IC29	8-759-977-79	IC CXD8002S	
IC30	8-759-916-55	IC SN74HC175N	
IC31	8-759-796-84	IC PAL16L8ACN-M1003	
IC32	8-759-977-76	IC MB4056P	
IC33	8-759-203-78	IC TC74HC4511P	
IC34	8-759-977-78	IC MB88342P	
IC35	8-759-700-81	IC NJM555D	
IC36	8-759-787-66	IC MB7124H-M1	
IC37	8-759-946-12	IC AD7528JN	
IC38	8-759-113-18	IC UPC4574C	
IC39	8-759-982-44	IC RC79L05A	
IC40	8-759-113-18	IC UPC4574C	
IC41	8-759-982-26	IC RC78L12A	
IC42	8-759-982-48	IC RC79L12A	
IC43	8-759-113-18	IC UPC4574C	
<u>COIL</u>			
L1	1-421-421-00	COIL, CHOKE	100UH
<u>TRANSISTOR</u>			
Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q2	8-729-115-30	TRANSISTOR 2SK105A-30	
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q4	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q5	8-729-119-76	TRANSISTOR 2SA1175-HFE	
<u>RESISTOR</u>			
R1	1-249-429-11	CARBON 10K 5% 1/4W	
R2	1-249-429-11	CARBON 10K 5% 1/4W	
R3	1-249-429-11	CARBON 10K 5% 1/4W	
R4	1-249-425-11	CARBON 4.7K 5% 1/4W	
R5	1-249-425-11	CARBON 4.7K 5% 1/4W	
R6	1-249-425-11	CARBON 4.7K 5% 1/4W	
R7	1-249-429-11	CARBON 10K 5% 1/4W	
R8	1-249-417-11	CARBON 1K 5% 1/4W	
R9	1-249-417-11	CARBON 1K 5% 1/4W	
R10	1-249-417-11	CARBON 1K 5% 1/4W	
R11	1-249-417-11	CARBON 1K 5% 1/4W	
R12	1-249-417-11	CARBON 1K 5% 1/4W	
R13	1-249-417-11	CARBON 1K 5% 1/4W	
R14	1-249-417-11	CARBON 1K 5% 1/4W	
R15	1-249-417-11	CARBON 1K 5% 1/4W	
R16	1-249-429-11	CARBON 10K 5% 1/4W	
R17	1-249-413-11	CARBON 470 5% 1/4W	
R18	1-249-429-11	CARBON 10K 5% 1/4W	
R19	1-249-429-11	CARBON 10K 5% 1/4W	
R20	1-249-429-11	CARBON 10K 5% 1/4W	
R21	1-249-419-11	CARBON 1.5K 5% 1/4W	
R22	1-249-425-11	CARBON 4.7K 5% 1/4W	
R23	1-249-413-11	CARBON 470 5% 1/4W	
R24	1-249-413-11	CARBON 470 5% 1/4W	
R25	1-249-429-11	CARBON 10K 5% 1/4W	
R27	1-249-429-11	CARBON 10K 5% 1/4W	
R28	1-249-405-11	CARBON 100 5% 1/4W	
R29	1-249-405-11	CARBON 100 5% 1/4W	
R30	1-249-429-11	CARBON 10K 5% 1/4W	
R31	1-249-405-11	CARBON 100 5% 1/4W	
R32	1-249-417-11	CARBON 1K 5% 1/4W	
R33	1-249-417-11	CARBON 1K 5% 1/4W	
R34	1-249-405-11	CARBON 100 5% 1/4W	
R35	1-249-429-11	CARBON 10K 5% 1/4W	

Ref.No	Part No.	Description	Remark
R36	1-249-429-11	CARBON 10K 5% 1/4W	
R37	1-249-429-11	CARBON 10K 5% 1/4W	
R38	1-249-429-11	CARBON 10K 5% 1/4W	
R39	1-249-429-11	CARBON 10K 5% 1/4W	
R40	1-249-429-11	CARBON 10K 5% 1/4W	
R41	1-249-429-11	CARBON 10K 5% 1/4W	
R42	1-215-445-00	METAL 10K 1% 1/6W	
R43	1-215-445-00	METAL 10K 1% 1/6W	
R44	1-215-445-00	METAL 10K 1% 1/6W	
R45	1-215-445-00	METAL 10K 1% 1/6W	
R46	1-249-431-11	CARBON 15K 5% 1/4W	
R47	1-249-414-11	CARBON 560 5% 1/4W	
R48	1-215-441-00	METAL 6.8K 1% 1/6W	
DDM-2801C; Serial No. 2,000,039 and higher DDM-2802C; Serial No. 2,000,015 and higher DDM-2801C2; Serial No. 2,000,049 and higher DDM-2802C2; Serial No. 2,000,006 and higher			
R48	1-249-437-11	CARBON 47K 5% 1/4W	
DDM-2801C; Serial No. 2,000,006~2,000,038 DDM-2802C; Serial No. 2,000,001~2,000,014 DDM-2801C2; Serial No. 2,000,004~2,000,048 DDM-2802C2; Serial No. 2,000,002~2,000,005			
R49	1-249-433-11	CARBON 22K 5% 1/4W	
R50	1-249-429-11	CARBON 10K 5% 1/4W	
R51	1-249-429-11	CARBON 10K 5% 1/4W	
R52	1-249-429-11	CARBON 10K 5% 1/4W	
R54	1-249-429-11	CARBON 10K 5% 1/4W	
R55	1-249-429-11	CARBON 10K 5% 1/4W	
R56	1-249-405-11	CARBON 100 5% 1/4W	
R57	1-249-429-11	CARBON 10K 5% 1/4W	
R58	1-249-429-11	CARBON 10K 5% 1/4W	
R59	1-249-433-11	CARBON 22K 5% 1/4W	
R60	1-249-421-11	CARBON 2.2K 5% 1/4W	
R61	1-215-493-00	METAL 1M 1% 1/6W	
R62	1-249-429-11	CARBON 10K 5% 1/4W	
R63	1-249-429-11	CARBON 10K 5% 1/4W	
R64	1-249-429-11	CARBON 10K 5% 1/4W	
R65	1-249-417-11	CARBON 1K 5% 1/4W	
R66	1-249-429-11	CARBON 10K 5% 1/4W	
R67	1-247-895-00	CARBON 470K 5% 1/4W	
R68	1-249-425-11	CARBON 4.7K 5% 1/4W	
R69	1-249-405-11	CARBON 100 5% 1/4W	
R70	1-249-441-11	CARBON 100K 5% 1/4W	
R71	1-215-445-00	METAL 10K 1% 1/6W	
R72	1-215-445-00	METAL 10K 1% 1/6W	
R73	1-249-441-11	CARBON 100K 5% 1/4W	
R74	1-249-437-11	CARBON 47K 5% 1/4W	
R76	1-249-435-11	CARBON 33K 5% 1/4W	
R77	1-247-883-00	CARBON 150K 5% 1/4W	
R78	1-247-883-00	CARBON 150K 5% 1/4W	
R79	1-215-445-00	METAL 10K 1% 1/6W	
R80	1-247-895-00	CARBON 470K 5% 1/4W	
R81	1-215-441-00	METAL 6.8K 1% 1/6W	
R82	1-215-459-00	METAL 39K 1% 1/6W	
R83	1-249-429-11	CARBON 10K 5% 1/4W	
R84	1-215-493-00	METAL 1M 1% 1/6W	
R85	1-215-445-00	METAL 10K 1% 1/6W	
R86	1-249-417-11	CARBON 1K 5% 1/4W	
R87	1-249-417-11	CARBON 1K 5% 1/4W	
R88	1-247-883-00	CARBON 150K 5% 1/4W	
R89	1-247-883-00	CARBON 150K 5% 1/4W	
R90	1-249-435-11	CARBON 33K 5% 1/4W	
R91	1-249-417-11	CARBON 1K 5% 1/4W	
R93	1-249-429-11	CARBON 10K 5% 1/4W	
R94	1-249-429-11	CARBON 10K 5% 1/4W	
R95	1-249-405-11	CARBON 100 5% 1/4W	
R96	1-249-405-11	CARBON 100 5% 1/4W	

M1

M2

Ref.No	Part No.	Description	Remark
R97	1-249-405-11	CARBON 100 5% 1/4W	
R98	1-249-429-11	CARBON 10K 5% 1/4W	
R99	1-249-433-11	CARBON 22K 5% 1/4W	
R100	1-215-425-00	METAL 1.5K 1% 1/6W	
		DDM-2801C; Serial No. 2,000,039 and higher	
		DDM-2802C; Serial No. 2,000,015 and higher	
		DDM-2801C2; Serial No. 2,000,049 and higher	
		DDM-2802C2; Serial No. 2,000,006 and higher	

COMPOSITION CIRCUIT BLOCK

RB3	1-249-429-11	COMPOSITION CIRCUIT BLOCK	
RB5	1-249-429-11	COMPOSITION CIRCUIT BLOCK	
RB6	1-249-429-11	COMPOSITION CIRCUIT BLOCK	

VARIABLE RESISTOR

RV1	1-237-516-21	RES, ADJ, GLAZE (PLL SYNC)	
		DDM-2801C; Serial No. 2,000,006~2,000,038	
		DDM-2802C; Serial No. 2,000,001~2,000,014	
		DDM-2801C2; Serial No. 2,000,004~2,000,048	
		DDM-2802C2; Serial No. 2,000,002~2,000,005	

SWITCH

S1	1-554-088-00	SWITCH, KEY BOARD	
S3	1-570-621-11	SWITCH, DIP	

CRYSTAL

X1	1-567-883-11	VIBRATOR, CRYSTAL (3.6864 MHz)	
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M2 BOARD, COMPLETE

* 1-566-986-11	CONNECTOR, MULTI 100P	
3-721-912-01	LEVER, PLATE (CP1, CP2)	
4-378-915-01	NUT, PLATE (26); (CN1)	

CAPACITOR

C1	1-124-122-11	ELECT	100MF	20%	25V
C2	1-124-122-11	ELECT	100MF	20%	25V
C4	1-101-004-00	CERAMIC	0.01MF		50V
C5	1-101-004-00	CERAMIC	0.01MF		50V
C6	1-101-004-00	CERAMIC	0.01MF		50V
C7	1-101-004-00	CERAMIC	0.01MF		50V
C9	1-101-004-00	CERAMIC	0.01MF		50V
C10	1-101-004-00	CERAMIC	0.01MF		50V
C11	1-101-004-00	CERAMIC	0.01MF		50V
C12	1-101-004-00	CERAMIC	0.01MF		50V
C13	1-101-004-00	CERAMIC	0.01MF		50V
C14	1-101-004-00	CERAMIC	0.01MF		50V
C15	1-101-004-00	CERAMIC	0.01MF		50V
C17	1-101-880-00	CERAMIC	47PF	5%	50V
C19	1-136-165-00	FILM	0.1MF	5%	50V
C20	1-136-165-00	FILM	0.1MF	5%	50V
C21	1-136-165-00	FILM	0.1MF	5%	50V
C22	1-136-165-00	FILM	0.1MF	5%	50V
C23	1-136-165-00	FILM	0.1MF	5%	50V
C24	1-136-165-00	FILM	0.1MF	5%	50V
C25	1-136-165-00	FILM	0.1MF	5%	50V
C27	1-101-880-00	CERAMIC	47PF	5%	50V
C28	1-102-074-00	CERAMIC	0.001MF	10%	50V
C29	1-101-880-00	CERAMIC	47PF	5%	50V
C30	1-102-074-00	CERAMIC	0.001MF	10%	50V
C31	1-101-880-00	CERAMIC	47PF	5%	50V
C33	1-101-880-00	CERAMIC	47PF	5%	50V
C35	1-101-880-00	CERAMIC	47PF	5%	50V
C36	1-102-074-00	CERAMIC	0.001MF	10%	50V

Ref.No	Part No.	Description	Remark
C37	1-101-880-00	CERAMIC	47PF 5% 50V
C38	1-102-074-00	CERAMIC	0.001MF 10% 50V
C39	1-101-880-00	CERAMIC	47PF 5% 50V
C40	1-102-074-00	CERAMIC	0.001MF 10% 50V
C41	1-102-973-00	CERAMIC	100PF 5% 50V

C42	1-102-973-00	CERAMIC	100PF 5% 50V
C43	1-136-163-00	FILM	0.068MF 5% 50V
C44	1-136-153-00	FILM	0.01MF 5% 50V
C45	1-136-153-00	FILM	0.01MF 5% 50V
C47	1-124-126-00	ELECT	47MF 20% 25V

C48	1-124-126-00	ELECT	47MF 20% 25V
C49	1-124-126-00	ELECT	47MF 20% 25V
C50	1-124-126-00	ELECT	47MF 20% 25V
C51	1-124-126-00	ELECT	47MF 20% 25V
C52	1-124-126-00	ELECT	47MF 20% 25V

C53	1-124-126-00	ELECT	47MF 20% 25V
C54	1-124-126-00	ELECT	47MF 20% 25V
C55	1-124-126-00	ELECT	47MF 20% 25V
C56	1-124-126-00	ELECT	47MF 20% 25V
C57	1-124-126-00	ELECT	47MF 20% 25V

C58	1-124-126-00	ELECT	47MF 20% 25V
C59	1-124-126-00	ELECT	47MF 20% 25V
C60	1-124-126-00	ELECT	47MF 20% 25V
C61	1-124-126-00	ELECT	47MF 20% 25V
C62	1-102-121-00	CERAMIC	0.0022MF 10% 50V

C63	1-102-121-00	CERAMIC	0.0022MF 10% 50V
C64	1-102-121-00	CERAMIC	0.0022MF 10% 50V
C65	1-102-121-00	CERAMIC	0.0022MF 10% 50V
C71	1-102-074-00	CERAMIC	0.001MF 10% 50V
C72	1-102-074-00	CERAMIC	0.001MF 10% 50V

C73	1-136-165-00	FILM	0.1MF 5% 50V
C74	1-136-165-00	FILM	0.1MF 5% 50V
C75	1-102-074-00	CERAMIC	0.001MF 10% 50V
C76	1-102-074-00	CERAMIC	0.001MF 10% 50V
C77	1-124-768-11	ELECT	4.7MF 20% 50V

C78	1-136-171-00	FILM	0.33MF 5% 50V
C79	1-136-171-00	FILM	0.33MF 5% 50V
C80	1-124-768-11	ELECT	4.7MF 20% 50V
C81	1-102-074-00	CERAMIC	0.001MF 10% 50V
C82	1-102-074-00	CERAMIC	0.001MF 10% 50V

C87	1-136-177-00	FILM	1MF 5% 50V
C101	1-124-122-11	ELECT	100MF 20% 25V
C102	1-124-122-11	ELECT	100MF 20% 25V
C103	1-124-126-00	ELECT	47MF 20% 25V
C104	1-124-126-00	ELECT	47MF 20% 25V

C105	1-124-126-00	ELECT	47MF 20% 25V
C106	1-124-126-00	ELECT	47MF 20% 25V
C107	1-124-126-00	ELECT	47MF 20% 25V
C108	1-124-126-00	ELECT	47MF 20% 25V
C109	1-124-126-00	ELECT	47MF 20% 25V

C110	1-124-126-00	ELECT	47MF 20% 25V
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DIODE

D2	8-719-109-96	DIODE RD6.8ESB1	
D3	8-719-109-96	DIODE RD6.8ESB1	
D4	8-719-109-96	DIODE RD6.8ESB1	
D5	8-719-109-57	DIODE RD2.4ESB2	

IC

IC1	8-759-604-39	IC M5F78M12	
	3-531-576-21	RIVET, (IC1)	
IC2	8-759-700-24	IC NJM79M12A	
	3-531-576-21	RIVET, (IC2)	
IC3	8-759-202-26	IC TC74HC138P	
IC4	8-759-202-26	IC TC74HC138P	
IC5	8-759-203-33	IC TC74HC367P	

DDM-2801C/2802C

DDM-2801C2/2802C2

M2

Ref.No	Part No.	Description	Remark
IC6	8-759-203-33	IC TC74HC367P	
IC7	8-759-202-56	IC TC74HC245P	
IC8	8-759-113-18	IC UPC4574C	
IC9	8-741-157-20	IC SBX1572-01	
IC10	8-741-157-20	IC SBX1572-01	
IC11	8-741-157-20	IC SBX1572-01	
IC12	8-741-157-20	IC SBX1572-01	
IC13	8-741-157-20	IC SBX1572-01	
IC14	8-741-157-20	IC SBX1572-01	
IC15	8-741-157-20	IC SBX1572-01	
IC17	8-759-109-82	IC UPC814C	
IC18	8-759-109-82	IC UPC814C	
IC19	8-759-109-82	IC UPC814C	
IC20	8-759-109-82	IC UPC814C	
IC21	8-759-007-21	IC MC74HC4053N	
IC22	8-759-140-53	IC MC14053BCP	
IC23	8-759-040-53	IC MC14053BCP	
IC24	8-759-113-18	IC UPC4574C	
IC25	8-759-113-18	IC UPC4574C	
IC26	8-759-113-18	IC UPC4574C	
IC27	8-759-103-92	IC UPC318C	
IC28	8-759-103-92	IC UPC318C	
<u>COIL</u>			
L1	1-421-421-00	COIL, CHOKE	
L2	1-408-414-00	INDUCTOR	27UH
L3	1-408-414-00	INDUCTOR	27UH
L4	1-408-414-00	INDUCTOR	27UH
L5	1-408-414-00	INDUCTOR	27UH
L6	1-408-414-00	INDUCTOR	27UH
L7	1-408-414-00	INDUCTOR	27UH
L8	1-408-414-00	INDUCTOR	27UH
<u>TRANSISTOR</u>			
Q1	8-729-266-82	TRANSISTOR 2SC2668	
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE	
<u>RESISTOR</u>			
R1	1-249-429-11	CARBON 10K 5% 1/4W	
R2	1-249-429-11	CARBON 10K 5% 1/4W	
R3	1-249-429-11	CARBON 10K 5% 1/4W	
R4	1-249-429-11	CARBON 10K 5% 1/4W	
R6	1-249-429-11	CARBON 10K 5% 1/4W	
R7	1-249-429-11	CARBON 10K 5% 1/4W	
R8	1-249-413-11	CARBON 470 5% 1/4W	
R10	1-215-433-00	METAL 3.3K 1% 1/6W	
R11	1-215-433-00	METAL 3.3K 1% 1/6W	
R12	1-215-433-00	METAL 3.3K 1% 1/6W	
R13	1-215-433-00	METAL 3.3K 1% 1/6W	
R14	1-215-433-00	METAL 3.3K 1% 1/6W	
R15	1-215-433-00	METAL 3.3K 1% 1/6W	
R16	1-215-433-00	METAL 3.3K 1% 1/6W	
R17	1-215-433-00	METAL 3.3K 1% 1/6W	
R18	1-215-433-00	METAL 3.3K 1% 1/6W	
R19	1-215-433-00	METAL 3.3K 1% 1/6W	
R20	1-215-433-00	METAL 3.3K 1% 1/6W	
R21	1-215-433-00	METAL 3.3K 1% 1/6W	
R22	1-215-433-00	METAL 3.3K 1% 1/6W	
R23	1-215-433-00	METAL 3.3K 1% 1/6W	
R26	1-215-433-00	METAL 3.3K 1% 1/6W	
R27	1-215-433-00	METAL 3.3K 1% 1/6W	
R28	1-249-409-11	CARBON 220 5% 1/4W	
R30	1-215-433-00	METAL 3.3K 1% 1/6W	
R31	1-249-409-11	CARBON 220 5% 1/4W	

Ref.No	Part No.	Description	Remark
R32	1-215-433-00	METAL 3.3K 1% 1/6W	
R33	1-215-433-00	METAL 3.3K 1% 1/6W	
R34	1-249-409-11	CARBON 220 5% 1/4W	
R35	1-215-433-00	METAL 3.3K 1% 1/6W	
R36	1-215-433-00	METAL 3.3K 1% 1/6W	
R37	1-249-409-11	CARBON 220 5% 1/4W	
R38	1-215-433-00	METAL 3.3K 1% 1/6W	
R39	1-215-433-00	METAL 3.3K 1% 1/6W	
R40	1-249-409-11	CARBON 220 5% 1/4W	
R41	1-215-433-00	METAL 3.3K 1% 1/6W	
R42	1-215-433-00	METAL 3.3K 1% 1/6W	
R43	1-249-409-11	CARBON 220 5% 1/4W	
R44	1-215-433-00	METAL 3.3K 1% 1/6W	
R45	1-249-409-11	CARBON 220 5% 1/4W	
R47	1-249-409-11	CARBON 220 5% 1/4W	
R48	1-249-409-11	CARBON 220 5% 1/4W	
R49	1-249-405-11	CARBON 100 5% 1/4W	
R50	1-249-417-11	CARBON 1K 5% 1/4W	
R52	1-249-417-11	CARBON 1K 5% 1/4W	
R53	1-249-417-11	CARBON 1K 5% 1/4W	
R54	1-249-417-11	CARBON 1K 5% 1/4W	
R55	1-249-433-11	CARBON 22K 5% 1/4W	
R56	1-249-433-11	CARBON 22K 5% 1/4W	
R57	1-249-433-11	CARBON 22K 5% 1/4W	
R58	1-249-433-11	CARBON 22K 5% 1/4W	
R59	1-249-433-11	CARBON 22K 5% 1/4W	
R60	1-249-433-11	CARBON 22K 5% 1/4W	
R61	1-249-433-11	CARBON 22K 5% 1/4W	
R62	1-249-433-11	CARBON 22K 5% 1/4W	
R63	1-249-433-11	CARBON 22K 5% 1/4W	
R64	1-249-433-11	CARBON 22K 5% 1/4W	
R65	1-249-433-11	CARBON 22K 5% 1/4W	
R66	1-249-433-11	CARBON 22K 5% 1/4W	
R67	1-249-433-11	CARBON 22K 5% 1/4W	
R68	1-249-433-11	CARBON 22K 5% 1/4W	
R69	1-249-433-11	CARBON 22K 5% 1/4W	
R70	1-249-433-11	CARBON 22K 5% 1/4W	
R71	1-215-453-00	METAL 22K 1% 1/6W	
R72	1-215-453-00	METAL 22K 1% 1/6W	
R73	1-215-453-00	METAL 22K 1% 1/6W	
R74	1-215-459-00	METAL 39K 1% 1/6W	
R75	1-215-461-00	METAL 47K 1% 1/6W	
R76	1-215-449-00	METAL 15K 1% 1/6W	
R77	1-215-453-00	METAL 22K 1% 1/6W	
R78	1-215-453-00	METAL 22K 1% 1/6W	
R79	1-215-449-00	METAL 15K 1% 1/6W	
R80	1-249-433-11	CARBON 22K 5% 1/4W	
R81	1-249-433-11	CARBON 22K 5% 1/4W	
R82	1-215-447-00	METAL 12K 1% 1/6W	
R83	1-215-461-00	METAL 47K 1% 1/6W	
R84	1-215-461-00	METAL 47K 1% 1/6W	
R85	1-215-453-00	METAL 22K 1% 1/6W	
R86	1-215-453-00	METAL 22K 1% 1/6W	
R87	1-215-469-00	METAL 100K 1% 1/6W	
R88	1-215-447-00	METAL 12K 1% 1/6W	
R89	1-215-453-00	METAL 22K 1% 1/6W	
R90	1-215-441-00	METAL 6.8K 1% 1/6W	
R91	1-215-449-00	METAL 15K 1% 1/6W	
R92	1-215-449-00	METAL 15K 1% 1/6W	
R93	1-215-453-00	METAL 22K 1% 1/6W	
R94	1-215-461-00	METAL 47K 1% 1/6W	
R95	1-249-417-11	CARBON 1K 5% 1/4W	
R96	1-215-453-00	METAL 22K 1% 1/6W	
R97	1-215-453-00	METAL 22K 1% 1/6W	
R98	1-215-437-00	METAL 4.7K 1% 1/6W	

M2

M2A

M2B

Ref.No	Part No.	Description	Remark		
R99	1-215-461-00	METAL	47K	1%	1/6W
R100	1-215-453-00	METAL	22K	1%	1/6W
R101	1-215-453-00	METAL	22K	1%	1/6W
R102	1-215-453-00	METAL	22K	1%	1/6W
R103	1-215-457-00	METAL	33K	1%	1/6W
R104	1-215-453-00	METAL	22K	1%	1/6W
R105	1-215-453-00	METAL	22K	1%	1/6W
R106	1-215-457-00	METAL	33K	1%	1/6W
R107	1-215-433-00	METAL	3.3K	1%	1/6W
R110	1-249-433-11	CARBON	22K	5%	1/4W
R111	1-249-433-11	CARBON	22K	5%	1/4W
R112	1-215-461-00	METAL	47K	1%	1/6W
R115	1-249-401-11	CARBON	47	5%	1/4W

*A-1301-815-A M2A BOARD, COMPLETE

*1-566-095-11 PIN, BOARD TO BOARD 5P

CAPACITOR

C1	1-163-077-00	CERAMIC CHIP	0.1MF	10%	25V
C2	1-135-159-21	TANTAL CHIP	10MF	10%	16V
C3	1-136-165-00	FILM	0.1MF	5%	50V
C4	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C5	1-135-159-21	TANTAL CHIP	10MF	10%	16V
C6	1-135-164-21	TANTAL CHIP	22MF	10%	16V
C7	1-135-164-21	TANTAL CHIP	22MF	10%	16V
C8	1-163-038-00	CERAMIC CHIP	0.1MF		25V

DIODE

D1	8-719-105-74	DIODE	RD4.7M-B3
D2	8-719-100-03	DIODE	1S2835
D4	8-719-105-74	DIODE	RD4.7M-B3
D5	8-719-105-38	DIODE	RD3.0M-B1

IC

IC1	8-759-100-96	IC	UPC4558G2
IC2	8-759-100-96	IC	UPC4558G2
IC3	8-759-100-96	IC	UPC4558G2

TRANSISTOR

Q1	8-729-100-66	TRANSISTOR	2SC1623
Q2	8-729-100-66	TRANSISTOR	2SC1623
Q3	8-729-100-66	TRANSISTOR	2SC1623
Q4	8-729-100-66	TRANSISTOR	2SC1623
Q5	8-729-100-66	TRANSISTOR	2SC1623
Q6	8-729-100-66	TRANSISTOR	2SC1623
Q7	8-729-216-22	TRANSISTOR	2SA1162

RESISTOR

JW1	1-216-295-00	METAL GLAZE	0	5%	1/10W
JW2	1-216-295-00	METAL GLAZE	0	5%	1/10W
JW3	1-216-295-00	METAL GLAZE	0	5%	1/10W
JW4	1-216-295-00	METAL GLAZE	0	5%	1/10W
JW5	1-216-295-00	METAL GLAZE	0	5%	1/10W
R1	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R2	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R3	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R4	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R5	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R6	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R7	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R8	1-216-681-11	METAL CHIP	18K	0.50%	1/10W
R9	1-216-081-00	METAL GLAZE	22K	5%	1/10W

Ref.No	Part No.	Description	Remark		
R10	1-216-675-11	METAL CHIP	10K	0.50%	1/10W
R11	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R12	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R13	1-216-685-11	METAL CHIP	27K	0.50%	1/10W
R14	1-216-675-11	METAL CHIP	10K	0.50%	1/10W
R15	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R16	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R17	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R18	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R19	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R20	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R21	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R22	1-216-115-00	METAL GLAZE	560K	5%	1/10W
R23	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R24	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R25	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R26	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R27	1-216-085-00	METAL GLAZE	33K	5%	1/10W

*A-1301-816-A M2B BOARD, COMPLETE

CAPACITOR

C1	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C2	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C3	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C4	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C5	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C6	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C7	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C8	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C9	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C10	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C11	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C12	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C13	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C14	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C15	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C16	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C17	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C18	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C19	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C20	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C21	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C22	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C23	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C24	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C25	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C26	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C27	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C28	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C29	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C30	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C31	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C32	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C33	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C34	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C35	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C36	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C37	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C38	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C39	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C40	1-163-038-00	CERAMIC CHIP	0.1MF		25V

M2B	M2C
<p>1. Introduction</p> <p>2. Methodology</p> <p>3. Results</p> <p>4. Discussion</p> <p>5. Conclusion</p>	<p>1. Introduction</p> <p>2. Methodology</p> <p>3. Results</p> <p>4. Discussion</p> <p>5. Conclusion</p>

C

E

Ref.No Part No. Description Remark

C BOARD, COMPLETE
******1-565-822-11 SOCKET, PIN 1P
1-590-260-11 LEAD ASSY, SIELD HIGH VOLTAVGE (G4)
1-590-261-11 LEAD ASSY, SIELD HIGH VOLTAVGE

CAPACITOR

C1	1-162-114-00	CERAMIC	0.0047MF	2KV
C2	1-164-215-11	CERAMIC CHIP	68PF	5% 500V
C3	1-164-215-11	CERAMIC CHIP	68PF	5% 500V
C4	1-164-215-11	CERAMIC CHIP	68PF	5% 500V
C5	1-164-215-11	CERAMIC CHIP	68PF	5% 500V
C6	1-164-215-11	CERAMIC CHIP	68PF	5% 500V

PLUG

CNC-1 *1-564-505-11 PLUG CONNECTOR 2P
CNC-2 *1-564-506-11 PLUG CONNECTOR 3P
CNC-3 *1-508-784-00 PIN CONNECTOR (5MM PITCH) 1P

LAMP

NL1 1-519-276-00 LAMP, NEON
NL2 1-519-276-00 LAMP, NEON
NL3 1-519-276-00 LAMP, NEON

RESISTOR

R1	1-202-561-00	SOLID	330	10%	1/2W
R2	1-202-561-00	SOLID	330	10%	1/2W
R3	1-202-561-00	SOLID	330	10%	1/2W
R4	1-202-849-00	SOLID	820K	10%	1/2W

SOCKET

S1 1-540-049-11 SOCKET, PICTURE TUBE

DISCHARING GAP

SG1 1-519-063-XX DISCHARING GAP
SG2 1-519-063-XX DISCHARING GAP
SG3 1-519-063-XX DISCHARING GAPE BOARD, COMPLETE
*****4-029-924-01 HOLDER (S), IC
*4-341-751-01 EYELET (EY4-EY14)
*4-341-752-01 EYELET (EY1-EY3)
4-391-550-01 SCREW (M5X15) (A), LOCK

CAPACITOR

C1	1-102-110-00	CERAMIC	220PF	10%	50V
C2	1-126-523-11	ELECT	47MF	20%	250V
C3	1-136-153-00	FILM	0.01MF	5%	50V
C4	1-101-888-00	CERAMIC	68PF	5%	50V
C5	1-108-692-11	MYLAR	0.01MF	10%	200V
C7	1-136-128-00	FILM	1.2MF	5%	400V
C8	1-108-816-11	MYLAR	0.1MF	5%	50V
C9	1-124-122-11	ELECT	100MF	20%	25V
C10	1-108-686-11	MYLAR	0.0033MF	10%	100V
C11	1-108-688-11	MYLAR	0.0047MF	10%	200V
C12	1-136-749-11	FILM	0.36MF	5%	400V
C13	1-136-750-11	FILM	0.0047MF	3%	2KV
C14	1-162-115-00	CERAMIC	330PF	10%	2KV
C15	1-162-115-00	CERAMIC	330PF	10%	2KV
C16	1-136-559-11	FILM	0.0047MF	10%	630V

Ref.No Part No. Description Remark

C17	1-124-510-11	ELECT	220MF	20%	25V
C18	1-124-510-11	ELECT	220MF	20%	25V
C19	1-123-875-11	ELECT	10MF	20%	50V
C20	1-123-330-00	ELECT	22MF	20%	25V
C21	1-136-173-00	FILM	0.47MF	5%	50V

C22	1-136-165-00	FILM	0.1MF	5%	50V
C23	1-124-122-11	ELECT	100MF	20%	25V
C24	1-124-122-11	ELECT	100MF	20%	25V
C25	1-124-122-11	ELECT	100MF	20%	25V
C26	1-124-122-11	ELECT	100MF	20%	25V

C27	1-124-122-11	ELECT	100MF	20%	25V
C28	1-124-791-11	ELECT	1MF	20%	50V
C29	1-108-638-11	MYLAR	0.1MF	10%	100V
C30	1-124-791-11	ELECT	1MF	20%	50V
C31	1-123-875-11	ELECT	10MF	20%	50V

C32	1-102-973-00	CERAMIC	100PF	5%	50V
C33	1-130-471-00	FILM	0.001MF	5%	50V
C34	1-136-153-00	FILM	0.01MF	5%	50V
C35	1-124-122-11	ELECT	100MF	20%	25V
C36	1-124-122-11	ELECT	100MF	20%	25V

C38	1-123-875-11	ELECT	10MF	20%	50V
C39	1-102-074-00	CERAMIC	0.001MF	10%	50V
C40	1-101-880-00	CERAMIC	47PF	5%	50V
C41	1-124-657-00	ELECT	10MF	20%	50V
C42	1-124-126-00	ELECT	47MF	20%	25V

C43	1-130-012-00	FILM	330PF	5%	50V
C44	1-101-361-00	CERAMIC	150PF	5%	50V
C45	1-136-165-00	FILM	0.1MF	5%	50V
C46	1-136-157-00	FILM	0.022MF	5%	50V
C47	1-130-017-00	FILM	820PF	10%	50V

C48	1-124-791-11	ELECT	1MF	20%	50V
C49	1-130-471-00	FILM	0.001MF	5%	50V
C50	1-136-165-00	FILM	0.1MF	5%	50V
C51	1-124-510-11	ELECT	220MF	20%	25V
C52	1-108-796-11	MYLAR	0.0022MF	5%	50V

C53	1-126-163-11	ELECT	4.7MF	20%	50V
C54	1-136-165-00	FILM	0.1MF	5%	50V
C55	1-136-165-00	FILM	0.1MF	5%	50V
C56	1-126-170-11	ELECT	1000MF	20%	50V
C57	1-126-170-11	ELECT	1000MF	20%	50V

C58	1-136-153-00	FILM	0.01MF	5%	50V
C60	1-124-122-11	ELECT	100MF	20%	25V
C61	1-102-233-00	CERAMIC	33PF	10%	500V
C62	1-136-111-00	FILM	1MF	5%	200V
C63	1-136-108-00	FILM	0.43MF	5%	200V

C64	1-108-702-11	MYLAR	0.068MF	10%	200V
C65	1-136-111-00	FILM	1MF	5%	200V
C66	1-129-898-00	FILM	0.0022MF	5%	630V
C67	1-123-875-11	ELECT	10MF	20%	50V
C69	1-124-122-11	ELECT	100MF	20%	25V

C70	1-136-153-00	FILM	0.01MF	5%	50V
C71	1-136-153-00	FILM	0.01MF	5%	50V
C72	1-124-122-11	ELECT	100MF	20%	25V
C73	1-123-381-00	ELECT	2.2MF	20%	50V
C76	1-102-112-00	CERAMIC	330PF	10%	50V

C77	1-136-153-00	FILM	0.01MF	5%	50V
C80	1-124-126-00	ELECT	47MF	20%	25V

PLUG

CNE-1 *1-560-177-00 CONNECTOR 4P
CNE-2 *1-564-514-11 PLUG CONNECTOR 11P
CNE-3 *1-564-507-11 PLUG CONNECTOR 4P
CNE-4 *1-564-508-11 PLUG CONNECTOR 5P
CNE-5 *1-564-516-11 PLUG CONNECTOR 13P

CNE-6 *1-560-178-00 CONNECTOR 6P

DDM-2801C/2802C
DDM-2801C2/2802C2

E

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>DIODE</u>							
D1	8-719-200-02	DIODE 10E-2		Q7	8-729-820-73	TRANSISTOR 2SC3746	
D2	8-719-981-00	DIODE ERC81-004			4-875-726-00	SHEET, INSULATING ; (Q7)	
D3	8-719-970-89	DIODE DD50R			4-382-854-11	SCREW (M3X10), P, SW(+) (Q7)	
	4-391-517-01	INSULATOR (C) (D3)		Q8	8-729-820-71	TRANSISTOR 2SC3998	
	4-391-547-01	IC HOLDER ; (D3)			4-391-515-01	SHEET, INSULATING ; (Q8)	
D4	8-719-920-67	DIODE ERC91-02			4-391-547-01	IC HOLDER ; (Q8)	
D5	8-719-920-67	DIODE ERC91-02		Q9	8-729-266-83	TRANSISTOR 2SC2668	
				Q10	8-729-266-83	TRANSISTOR 2SC2668	
D6	8-719-109-85	DIODE RD5.1ESB2		Q11	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D7	8-719-971-20	DIODE ERC38-06					
D8	8-719-110-17	DIODE RD10ESB2		Q12	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D9	8-719-109-85	DIODE RD5.1ESB2		Q13	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D10	8-719-812-41	DIODE TLR124		Q14	8-729-119-78	TRANSISTOR 2SC2785-HFE	
				Q16	8-729-122-12	TRANSISTOR 2SA1221-L	
D11	8-719-200-02	DIODE 10E2		Q17	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D12	8-719-110-17	DIODE RD10ESB2					
D13	8-719-812-41	DIODE TLR124		Q18	8-729-697-92	TRANSISTOR 2SA979	
D14	8-719-109-81	DIODE RD4.7ESB2		Q19	8-729-195-82	TRANSISTOR 2SC2958	
D15	8-719-911-19	DIODE 1SS119		Q20	8-729-805-05	TRANSISTOR 2SC3601	
				Q21	8-729-802-71	TRANSISTOR 2SA1407-D	
D16	8-719-971-20	DIODE ERC38-06		Q22	8-729-304-49	TRANSISTOR 2SC3519S-Y	
D17	8-719-911-19	DIODE 1SS119			4-391-515-01	SHEET, INSULATING ; (Q22)	
D18	8-719-911-19	DIODE 1SS119			4-391-547-01	IC HOLDER ; (Q22)	
D19	8-719-971-20	DIODE ERC38-06		Q23	8-729-301-86	TRANSISTOR 2SA1386-Y	
D20	8-719-000-28	THYRISTOR CR02AM-8			4-391-515-01	SHEET, INSULATING ; (Q23)	
					4-391-547-01	IC HOLDER ; (Q23)	
D21	8-719-911-19	DIODE 1SS119		Q24	8-729-900-36	TRANSISTOR DTC124ES	
D22	8-719-911-19	DIODE 1SS119					
D23	8-719-109-85	DIODE RD5.1ESB2		<u>RESISTOR</u>			
D24	8-719-109-85	DIODE RD5.1ESB2		R1	1-249-425-11	CARBON 4.7K 5% 1/4W	
D25	8-719-911-19	DIODE 1SS119		R2	1-249-425-11	CARBON 4.7K 5% 1/4W	
<u>IC</u>				R3	1-247-752-11	CARBON 1K 5% 1/2W	
IC1	8-759-990-82	IC TL082CP		R4	1-215-437-00	METAL 4.7K 1% 1/6W	
IC2	8-719-933-26	DIODE PC910		R5	1-215-437-00	METAL 4.7K 1% 1/6W	
IC3	8-759-803-42	IC LA6500-FA					
	4-391-515-01	INSULATOR (A) ; (IC3)		R6	1-249-429-11	CARBON 10K 5% 1/4W	
	4-391-547-01	IC HOLDER ; (IC3)		R7	1-216-439-00	METAL OXIDE 12K 5% 1W	F
IC4	8-759-008-72	IC LM393N		R8	1-216-440-00	METAL OXIDE 18K 5% 1W	F
IC5	8-759-109-82	IC UPC814C		R9	1-249-413-11	CARBON 470 5% 1/4W	
				R10	1-249-417-11	CARBON 1K 5% 1/4W	
IC6	8-759-982-13	IC RC7812FA					
	4-391-515-01	INSULATOR (A) ; (IC6)		R11	1-249-417-11	CARBON 1K 5% 1/4W	
	4-391-547-01	IC HOLDER ; (IC6)		R12	1-214-890-00	METAL 12K 1% 1/2W	
IC7	8-759-179-12	IC MPC7912H		R13	1-214-890-00	METAL 12K 1% 1/2W	
	4-391-515-01	INSULATOR (A) ; (IC7)		R14	1-214-890-00	METAL 12K 1% 1/2W	
	4-391-547-01	IC HOLDER ; (IC7)		R15	1-215-429-00	METAL 2.2K 1% 1/6W	
IC8	8-759-982-21	IC RC78L05A					
IC9	8-759-821-42	IC LA7851		R16	1-249-405-11	CARBON 100 5% 1/4W	
IC10	8-759-179-12	IC CPC7912H		R17	1-249-401-11	CARBON 47 5% 1/4W	
	4-382-854-11	SCREW (M3X10), P, SW(+) (IC10)		R18	1-249-407-11	CARBON 150 5% 1/4W	
				R19	1-216-398-11	METAL OXIDE 5.6 5% 3W	F
				R20	1-216-398-11	METAL OXIDE 5.6 5% 3W	F
<u>COIL</u>							
L1	1-421-421-00	COIL, CHOKE		R21	1-215-887-00	METAL 150 5% 2W	F
L2	1-459-920-11	COIL, HORIZONTAL LINEARITY		R22	1-217-418-00	FUSIBLE 0.47 10% 1/2W	F
L3	1-424-017-11	HCL		R23	1-217-418-00	FUSIBLE 0.47 10% 1/2W	F
L4	1-421-421-00	COIL, CHOKE		R24	1-215-421-00	METAL 1K 1% 1/6W	
L5	1-421-421-00	COIL, CHOKE		R25	1-215-429-00	METAL 2.2K 1% 1/6W	
L6	1-410-688-31	INDUCTOR 1.5MMH					
<u>TRANSISTOR</u>				R26	1-249-413-11	CARBON 470 5% 1/4W	
Q1	8-729-266-83	TRANSISTOR 2SC2668		R27	1-215-445-00	METAL 10K 1% 1/6W	
Q2	8-729-301-82	TRANSISTOR 2SC3519-Y		R28	1-249-429-11	CARBON 10K 5% 1/4W	
	4-391-515-01	INSULATOR (A) ; (Q2)		R29	1-215-467-00	METAL 82K 1% 1/6W	
	4-391-547-01	IC HOLDER ; (Q2)		R30	1-215-445-00	METAL 10K 1% 1/6W	
Q3	8-729-140-50	TRANSISTOR 2SC3209-LK					
Q4	8-729-140-50	TRANSISTOR 2SC3209-LK		R31	1-216-345-11	METAL OXIDE 0.47 5% 1W	F
Q5	8-729-177-42	TRANSISTOR 2SD774-3		R32	1-249-429-11	CARBON 10K 5% 1/4W	
				R33	1-249-425-11	CARBON 4.7K 5% 1/4W	
Q6	8-729-140-97	TRANSISTOR 2SB734-34		R34	1-249-413-11	CARBON 470 5% 1/4W	
				R35	1-247-752-11	CARBON 1K 5% 1/2W	
				R36	1-249-414-11	CARBON 560 5% 1/4W	
				R37	1-249-412-11	CARBON 390 5% 1/4W	
				R38	1-249-437-11	CARBON 47K 5% 1/4W	
				R39	1-247-895-00	CARBON 470K 5% 1/4W	
				R40	1-249-421-11	CARBON 2.2K 5% 1/4W	

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EA

Ref.No	Part No.	Description	Remark			
R41	1-249-425-11	CARBON	4.7K	5%	1/4W	
R42	1-249-425-11	CARBON	4.7K	5%	1/4W	
R43	1-249-437-11	CARBON	47K	5%	1/4W	
R44	1-249-435-11	CARBON	33K	5%	1/4W	
R45	1-247-895-00	CARBON	470K	5%	1/4W	
R46	1-249-425-11	CARBON	4.7K	5%	1/4W	
R47	1-249-429-11	CARBON	10K	5%	1/4W	
R48	1-249-425-11	CARBON	4.7K	5%	1/4W	
R50	1-249-429-11	CARBON	10K	5%	1/4W	
R51	1-249-425-11	CARBON	4.7K	5%	1/4W	
R52	1-249-429-11	CARBON	10K	5%	1/4W	
R53	1-215-445-00	METAL	10K	1%	1/6W	
R54	1-249-429-11	CARBON	10K	5%	1/4W	
R55	1-215-445-00	METAL	10K	1%	1/6W	
R56	1-215-437-00	METAL	4.7K	1%	1/6W	
R57	1-215-471-00	METAL	120K	1%	1/6W	
R58	1-215-437-00	METAL	4.7K	1%	1/6W	
R59	1-215-445-00	METAL	10K	1%	1/6W	
R61	1-249-425-11	CARBON	4.7K	5%	1/4W	
R63	1-249-405-11	CARBON	100	5%	1/4W	
R65	1-249-417-11	CARBON	1K	5%	1/4W	
R66	1-249-414-11	CARBON	560	5%	1/4W	
R67	1-215-421-00	METAL	1K	1%	1/6W	
R69	1-249-423-11	CARBON	3.3K	5%	1/4W	
R70	1-249-433-11	CARBON	22K	5%	1/4W	
R71	1-249-430-11	CARBON	12K	5%	1/4W	
R72	1-215-423-00	METAL	1.2K	1%	1/6W	
R73	1-249-417-11	CARBON	1K	5%	1/4W	
R75	1-215-473-00	METAL	150K	1%	1/6W	
R76	1-249-435-11	CARBON	33K	5%	1/4W	
R77	1-249-417-11	CARBON	1K	5%	1/4W	
R78	1-249-405-11	CARBON	100	5%	1/4W	
R79	1-215-449-00	METAL	15K	1%	1/6W	
R80	1-249-433-11	CARBON	22K	5%	1/4W	
R81	1-215-469-00	METAL	100K	1%	1/6W	
R82	1-215-457-00	METAL	33K	1%	1/6W	
R83	1-249-422-11	CARBON	2.7K	5%	1/4W	
R84	1-249-430-11	CARBON	12K	5%	1/4W	
R85	1-249-431-11	CARBON	15K	5%	1/4W	
R86	1-249-417-11	CARBON	1K	5%	1/4W	
R90	1-215-442-00	METAL	7.5K	1%	1/6W	
R91	1-215-421-00	METAL	1K	1%	1/6W	
R92	1-215-417-00	METAL	680	1%	1/6W	
R93	1-215-421-00	METAL	1K	1%	1/6W	
R94	1-215-433-00	METAL	3.3K	1%	1/6W	
R97	1-249-420-11	CARBON	1.8K	5%	1/4W	
R98	1-249-425-11	CARBON	4.7K	5%	1/4W	
R99	1-249-425-11	CARBON	4.7K	5%	1/4W	
R100	1-249-417-11	CARBON	1K	5%	1/4W	
R101	1-249-419-11	CARBON	1.5K	5%	1/4W	
R102	1-249-417-11	CARBON	1K	5%	1/4W	
R103	1-249-425-11	CARBON	4.7K	5%	1/4W	
R104	1-215-433-00	METAL	3.3K	1%	1/6W	
R105	1-216-489-11	METAL OXIDE	27K	5%	3W	F
R106	1-249-406-11	CARBON	120	5%	1/4W	F
R107	1-249-406-11	CARBON	120	5%	1/4W	
R108	1-249-411-11	CARBON	330	5%	1/4W	F
R109	1-217-465-00	FUSIBLE	0.47	10%	1W	F
R110	1-217-465-00	FUSIBLE	0.47	10%	1W	F
R111	1-249-417-11	CARBON	1K	5%	1/4W	
R112	1-249-405-11	CARBON	100	5%	1/4W	
R113	1-216-462-00	METAL OXIDE	8.2K	5%	2W	F
R114	1-215-886-11	METAL OXIDE	100	5%	2W	F
R115	1-216-453-00	METAL OXIDE	270	5%	2W	F
R116	1-215-913-11	METAL OXIDE	220	5%	3W	F

Ref.No	Part No.	Description	Remark			
R117	1-214-799-11	METAL	2	1%	1/2W	
R118	1-214-799-11	METAL	2	1%	1/2W	
R119	1-215-421-00	METAL	1K	1%	1/6W	
R120	1-249-421-11	CARBON	2.2K	5%	1/4W	
R121	1-249-423-11	CARBON	3.3K	5%	1/4W	
R122	1-249-405-11	CARBON	100	5%	1/4W	
R123	1-215-914-11	METAL OXIDE	330	5%	3W	F
R124	1-249-413-11	CARBON	470	5%	1/4W	
R125	1-249-417-11	CARBON	1K	5%	1/4W	
R126	1-249-417-11	CARBON	1K	5%	1/4W	
R127	1-216-390-11	METAL OXIDE	1.2	5%	3W	F
R128	1-215-421-00	METAL	1K	1%	1/6W	
R129	1-214-773-00	METAL	68K	1%	1/4W	
R130	1-214-773-00	METAL	68K	1%	1/4W	
R131	1-249-429-11	CARBON	10K	5%	1/4W	
R132	1-249-439-11	CARBON	68K	5%	1/4W	
R133	1-249-439-11	CARBON	68K	5%	1/4W	
R134	1-249-439-11	CARBON	68K	5%	1/4W	
R135	1-249-439-11	CARBON	68K	5%	1/4W	
R136	1-249-423-11	CARBON	3.3K	5%	1/4W	
R137	1-214-799-11	METAL	2	1%	1/2W	
R138	1-214-799-11	METAL	2	1%	1/2W	
R139	1-215-461-00	METAL	47K	1%	1/6W	
R140	1-249-397-11	CARBON	22	5%	1/4W	F
R143	1-216-398-11	METAL OXIDE	5.6	5%	3W	F
R144	1-215-419-00	METAL	820	1%	1/6W	
R145	1-249-405-11	CARBON	100	5%	1/4W	

VARIABLE, RESISTOR

RV1	1-237-499-21	RES, ADJ, CERMET 500
RV2	1-237-504-21	RES, ADJ, CERMET 20K
RV3	1-237-516-21	RES, ADJ, CERMET 2K
RV4	1-237-522-21	RES, ADJ, CERMET 200K

TRANSFORMER

T1	1-424-137-11	TRANSFORMER, HORIZONTAL DRIVE
T2	1-439-444-11	TRANSFORMER, HORIZONTAL OUTPUT
T3	1-424-138-12	TRANSFORMER, CORRECTION

*A-1341-279-A EA BOARD, COMPLETE

*1-506-603-11 PLUG, L TYPE (2.0MM PIT) 10P

CAPACITOR

C1	1-163-989-11	CERAMIC CHIP	0.033MF	5%	25V
C2	1-163-037-11	CERAMIC CHIP	0.022MF	5%	25V
C3	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C4	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C5	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C6	1-130-014-00	FILM	470PF	5%	50V
C7	1-126-157-11	ELECT	10MF	20%	16V
C8	1-126-157-11	ELECT	10MF	20%	16V
C12	1-163-251-11	CERAMIC CHIP	100PF	5%	50V

IC

IC1	8-759-700-43	IC	RC4558M
IC2	8-759-103-09	IC	UPC4082G2
IC4	8-759-981-64	IC	LM2903DQ

TRANSISTOR

Q1	8-729-100-66	TRANSISTOR	2SC1623
Q2	8-729-162-13	TRANSISTOR	2SC1621
Q3	8-729-100-66	TRANSISTOR	2SC1623

DDM-2801C/2802C DDM-2801C2/2802C2

EA S

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>			
Q4	8-729-100-66	TRANSISTOR	2SC1623			
Q5	8-729-116-05	TRANSISTOR	2SK160-K5			
<u>RESISTOR</u>						
JW1	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JW2	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JW3	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JW4	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JW5	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JW6	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JW7	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JW8	1-216-295-00	METAL GLAZE	0	5%	1/10W	
JW9	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JW10	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JW11	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JW12	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R4	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R7	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R8	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R9	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R10	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R11	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R13	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R15	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R16	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R17	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R18	1-249-417-11	CARBON	1K	5%	1/4W	
R19	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R20	1-249-417-11	CARBON	1K	5%	1/4W	
R21	1-249-417-11	CARBON	1K	5%	1/4W	
R22	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R23	1-249-425-11	CARBON	4.7K	5%	1/4W	
R24	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R26	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R27	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R29	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

5 BOARD, COMPLETE

4-029-923-01	SHEET, (F) INSULATOR
4-029-924-01	HOLDER, (S) IC
4-391-546-01	HOLDER, (WB) IC
4-391-547-01	HOLDER, IC
4-391-550-01	SCREW (M5X15) (A), LOCK

CAPACITOR

C1	1-124-126-00	ELECT	47MF	20%	25V
C3	1-123-605-00	ELECT	100MF	20%	100V
C4	1-123-605-00	ELECT	100MF	20%	100V
C7	1-136-153-00	FILM	0.01MF	5%	50V
C8	1-101-361-00	CERAMIC	150PF	5%	50V
C9	1-136-103-00	FILM	0.1MF	5%	200V
C15	1-102-980-00	CERAMIC	270PF	5%	50V
C16	1-102-951-00	CERAMIC	15PF	5%	50V
C17	1-101-361-00	CERAMIC	150PF	5%	50V
C18	1-136-103-00	FILM	0.1MF	5%	200V
C19	1-124-126-00	ELECT	47MF	20%	25V
C20	1-126-103-11	ELECT	470MF	20%	16V
C21	1-126-103-11	ELECT	470MF	20%	16V
C22	1-108-692-11	MYLAR	0.01MF	10%	200V
C23	1-123-330-00	ELECT	22MF	20%	25V
C24	1-108-692-11	MYLAR	0.01MF	10%	200V
C25	1-123-330-00	ELECT	22MF	20%	25V

Ref.No	Part No.	Description	Remark			
C26	1-124-513-11	ELECT	47MF	20%	50V	
C27	1-124-126-00	ELECT	47MF	20%	25V	
C29	1-136-165-00	FILM	0.1MF	5%	50V	
C33	1-136-103-00	FILM	0.1MF	5%	200V	
C34	1-124-126-00	ELECT	47MF	20%	25V	
C35	1-130-479-00	MYLAR	0.0047MF	5%	50V	
C36	1-124-126-00	ELECT	47MF	20%	25V	
C38	1-136-165-00	FILM	0.1MF	5%	50V	
C40	1-136-165-00	FILM	0.1MF	5%	50V	
C41	1-124-126-00	ELECT	47MF	20%	25V	
C43	1-136-165-00	FILM	0.1MF	5%	50V	
C46	1-136-165-00	FILM	0.1MF	5%	50V	
C48	1-136-165-00	FILM	0.1MF	5%	50V	
C50	1-136-165-00	FILM	0.1MF	5%	50V	
C51	1-124-126-00	ELECT	47MF	20%	25V	
C52	1-136-153-00	FILM	0.01MF	5%	50V	
C54	1-136-153-00	FILM	0.01MF	5%	50V	
C55	1-136-153-00	FILM	0.01MF	5%	50V	
C56	1-136-153-00	FILM	0.01MF	5%	50V	
C57	1-136-153-00	FILM	0.01MF	5%	50V	
C58	1-136-153-00	FILM	0.01MF	5%	50V	
C59	1-136-153-00	FILM	0.01MF	5%	50V	
C60	1-136-153-00	FILM	0.01MF	5%	50V	
C61	1-124-126-00	ELECT	47MF	20%	25V	
C62	1-124-126-00	ELECT	47MF	20%	25V	
C63	1-124-126-00	ELECT	47MF	20%	25V	
C64	1-124-126-00	ELECT	47MF	20%	25V	
C65	1-124-126-00	ELECT	47MF	20%	25V	
C66	1-124-126-00	ELECT	47MF	20%	25V	
C67	1-124-126-00	ELECT	47MF	20%	25V	
C68	1-124-126-00	ELECT	47MF	20%	25V	
C69	1-126-103-11	ELECT	470MF	20%	16V	
C70	1-124-126-00	ELECT	47MF	20%	25V	
C71	1-124-126-00	ELECT	47MF	20%	25V	
C72	1-136-153-00	FILM	0.01MF	5%	50V	
C74	1-130-471-00	MYLAR	0.001MF	5%	50V	
C76	1-130-471-00	MYLAR	0.001MF	5%	50V	
C77	1-130-471-00	MYLAR	0.001MF	5%	50V	
C78	1-130-471-00	MYLAR	0.001MF	5%	50V	
C79	1-130-471-00	MYLAR	0.001MF	5%	50V	
C80	1-130-471-00	MYLAR	0.001MF	5%	50V	
C81	1-130-471-00	MYLAR	0.001MF	5%	50V	
C82	1-136-153-00	FILM	0.01MF	5%	50V	

PLUG

CNS-1	*1-564-515-11	PLUG CONNECTOR 12P
CNS-2	*1-564-509-11	PLUG CONNECTOR 6P
CNS-3	*1-564-513-11	PLUG CONNECTOR 10P
CNS-4	*1-564-506-11	PLUG CONNECTOR 3P
CNS-5	*1-564-506-11	PLUG CONNECTOR 3P
CNS-6	*1-564-512-11	PLUG CONNECTOR 9P
CNS-7	*1-564-508-11	PLUG CONNECTOR 5P
CNS-8	*1-564-507-11	PLUG CONNECTOR 4P
CNS-9	*1-564-517-11	PLUG CONNECTOR 2P

DIODE

D1	8-719-911-19	DIODE 1SS119
D2	8-719-911-19	DIODE 1SS119
D3	8-719-911-19	DIODE 1SS119
D4	8-719-911-19	DIODE 1SS119
D5	8-719-971-20	DIODE ERC38-06
D6	8-719-109-85	DIODE RD5.1ESB2
D7	8-719-911-19	DIODE 1SS119
D8	8-719-971-20	DIODE ERC38-06
D9	8-719-109-85	DIODE RD5.1ESB2
D10	8-719-911-19	DIODE 1SS119

Ref.No	Part No.	Description	Remark
D11	8-719-812-41	DIODE TLR124	
D12	8-719-911-19	DIODE ISS119	
<u>IC</u>			
IC2	8-759-982-21	IC RC78L05A	
IC3	8-759-977-78	IC MB88342P	
IC4	8-759-803-42	IC LA6500-FA	
IC6	8-759-803-42	IC LA6500-FA	
IC7	8-759-803-42	IC LA6500-FA	
IC8	8-759-803-42	IC LA6500-FA	
IC9	8-759-803-42	IC LA6500-FA	
IC10	8-759-803-42	IC LA6500-FA	
IC11	8-759-803-42	IC LA6500-FA	
IC12	8-759-803-42	IC LA6500-FA	
IC13	8-759-803-42	IC LA6500-FA	
IC14	8-759-103-93	IC UPC393C	
<u>COIL</u>			
L1	1-421-421-00	COIL, CHOKE 100UH	
L2	1-421-421-00	COIL, CHOKE 100UH	
L3	1-421-421-00	COIL, CHOKE 100UH	
L4	1-421-421-00	COIL, CHOKE 100UH	
L5	1-421-421-00	COIL, CHOKE 100UH	
<u>TRANSISTOR</u>			
Q3	8-729-309-36	TRANSISTOR 2SA893A	
Q4	8-729-309-36	TRANSISTOR 2SA893A	
Q5	8-729-207-82	TRANSISTOR 2SC3421-Y	
Q6	8-729-207-82	TRANSISTOR 2SC3421-Y	
Q7	8-729-207-89	TRANSISTOR 2SA1358-Y	
Q8	8-729-301-82	TRANSISTOR 2SC3519-Y	
Q9	8-729-301-86	TRANSISTOR 2SA1386-Y	
Q12	8-729-309-36	TRANSISTOR 2SA893A	
Q13	8-729-309-36	TRANSISTOR 2SA893A	
Q14	8-729-207-82	TRANSISTOR 2SC3421-Y	
Q15	8-729-207-82	TRANSISTOR 2SC3421-Y	
Q16	8-729-207-89	TRANSISTOR 2SA1358-Y	
Q17	8-729-301-82	TRANSISTOR 2SC3519-Y	
Q18	8-729-301-86	TRANSISTOR 2SA1386-Y	
Q21	8-729-119-76	TRANSISTOR 2SA1175-HFE	
DDM-2801C; Serial No. 10,001~10,091			
Q22	8-729-900-36	TRANSISTOR DTC124ES	
Q23	8-729-107-84	TRANSISTOR 2SC3623A-L	
Q24	8-729-107-84	TRANSISTOR 2SC3623A-L	
Q25	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q26	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q27	8-729-900-36	TRANSISTOR DTC124ES	
<u>RESISTOR</u>			
R6	1-215-437-00	METAL 4.7K 1% 1/6W	
R8	1-215-437-00	METAL 4.7K 1% 1/6W	
R9	1-249-425-11	CARBON 4.7K 5% 1/4W	
R10	1-249-417-11	CARBON 1K 5% 1/4W	
R11	1-249-427-11	CARBON 6.8K 5% 1/4W	
R12	1-249-417-11	CARBON 1K 5% 1/4W	
R13	1-215-921-11	METAL OXIDE 4.7K 5% 3W F	
R14	1-249-393-11	CARBON 10 5% 1/4W	
R15	1-249-405-11	CARBON 100 5% 1/4W	
R16	1-249-421-11	CARBON 2.2K 5% 1/4W	
R17	1-249-405-11	CARBON 100 5% 1/4W F	
R18	1-249-405-11	CARBON 100 5% 1/4W	
R19	1-249-405-11	CARBON 100 5% 1/4W	
R20	1-249-421-11	CARBON 2.2K 5% 1/4W	
R21	1-217-465-00	FUSIBLE 0.47 10% 1W F	
R22	1-217-465-00	FUSIBLE 0.47 10% 1W F	

Ref.No	Part No.	Description	Remark
R23	1-216-449-11	METAL OXIDE 56 5% 2W F	
R24	1-215-429-00	METAL 2.2K 1% 1/6W	
R25	1-214-792-00	METAL 1 1% 1/2W	
R26	1-214-792-00	METAL 1 1% 1/2W	
R33	1-215-429-00	METAL 2.2K 1% 1/6W	
R34	1-215-437-00	METAL 4.7K 1% 1/6W	
R35	1-249-425-11	CARBON 4.7K 5% 1/4W	
R36	1-249-417-11	CARBON 1K 5% 1/4W	
R37	1-249-417-11	CARBON 1K 5% 1/4W	
R38	1-215-921-11	METAL OXIDE 4.7K 5% 3W F	
R39	1-249-393-11	CARBON 10 5% 1/4W	
R40	1-249-405-11	CARBON 100 5% 1/4W	
R41	1-249-421-11	CARBON 2.2K 5% 1/4W	
R42	1-249-405-11	CARBON 100 5% 1/4W F	
R43	1-249-421-11	CARBON 2.2K 5% 1/4W	
R44	1-249-405-11	CARBON 100 5% 1/4W	
R45	1-249-405-11	CARBON 100 5% 1/4W	
R46	1-217-465-00	FUSIBLE 0.47 10% 1W F	
R47	1-217-465-00	FUSIBLE 0.47 10% 1W F	
R48	1-215-429-00	METAL 2.2K 1% 1/6W	
R49	1-216-449-11	METAL OXIDE 56 5% 2W F	
R50	1-214-792-00	METAL 1 1% 1/2W	
R51	1-214-792-00	METAL 1 1% 1/2W	
R52	1-215-437-00	METAL 4.7K 1% 1/6W	
R53	1-215-413-00	METAL 470 1% 1/6W	
R54	1-215-437-00	METAL 4.7K 1% 1/6W	
R55	1-215-413-00	METAL 470 1% 1/6W	
R56	1-249-433-11	CARBON 22K 5% 1/4W	
R57	1-249-425-11	CARBON 4.7K 5% 1/4W	
R58	1-249-441-11	CARBON 100K 5% 1/4W	
R59	1-249-433-11	CARBON 22K 5% 1/4W	
R60	1-249-425-11	CARBON 4.7K 5% 1/4W	
R61	1-249-441-11	CARBON 100K 5% 1/4W	
R62	1-249-421-11	CARBON 2.2K 5% 1/4W	
R63	1-249-425-11	CARBON 4.7K 5% 1/4W	
R64	1-249-422-11	CARBON 2.7K 5% 1/4W	
R65	1-249-425-11	CARBON 4.7K 5% 1/4W	
R66	1-215-461-00	METAL 47K 1% 1/6W	
R67	1-215-449-00	METAL 15K 1% 1/6W	
R68	1-215-453-00	METAL 22K 1% 1/6W	
R70	1-215-885-00	METAL OXIDE 68 5% 2W F	
R77	1-215-453-00	METAL 22K 1% 1/6W	
R78	1-249-429-11	CARBON 10K 5% 1/4W	
R79	1-215-453-00	METAL 22K 1% 1/6W	
R81	1-215-880-00	METAL OXIDE 10 5% 2W F	
R82	1-215-445-00	METAL 10K 1% 1/6W	
R83	1-249-427-11	CARBON 6.8K 5% 1/4W	
R84	1-215-453-00	METAL 22K 1% 1/6W	
R85	1-249-429-11	CARBON 10K 5% 1/4W	
R86	1-249-405-11	CARBON 100 5% 1/4W	
R87	1-249-417-11	CARBON 1K 5% 1/4W	
R88	1-249-417-11	CARBON 1K 5% 1/4W	
R89	1-249-417-11	CARBON 1K 5% 1/4W	
R90	1-249-441-11	CARBON 100K 5% 1/4W	
R91	1-249-441-11	CARBON 100K 5% 1/4W	
R92	1-249-441-11	CARBON 100K 5% 1/4W	
R93	1-215-453-00	METAL 22K 1% 1/6W	
R94	1-249-429-11	CARBON 10K 5% 1/4W	
R95	1-215-453-00	METAL 22K 1% 1/6W	
R97	1-215-882-00	METAL OXIDE 22 5% 2W F	
R98	1-215-453-00	METAL 22K 1% 1/6W	
R99	1-249-429-11	CARBON 10K 5% 1/4W	
R100	1-215-453-00	METAL 22K 1% 1/6W	
R102	1-215-882-00	METAL OXIDE 22 5% 2W F	
R103	1-215-453-00	METAL 22K 1% 1/6W	

DDM-2801C/2802C DDM-2801C2/2802C2

S J1 J2 J3 P

Les composants identifiés par
une trame et une marque **A**
sont critiques pour la sécurité.
Ne les remplacer que par une
pièce portant le numéro spécifique.

The components identified by
shading and mark **A** are critical
for safety.
Replace only with part number
specified.

Ref.No	Part No.	Description	Remark
R104	1-249-429-11	CARBON 10K 5%	1/4W
R105	1-215-453-00	METAL 22K 1%	1/6W
R107	1-215-882-00	METAL OXIDE 22 5%	2W F
R108	1-249-417-11	CARBON 1K 5%	1/4W
R109	1-249-441-11	CARBON 100K 5%	1/4W
R113	1-215-453-00	METAL 22K 1%	1/6W
R114	1-249-429-11	CARBON 10K 5%	1/4W
R115	1-215-453-00	METAL 22K 1%	1/6W
R117	1-215-882-00	METAL OXIDE 22 5%	2W F
R118	1-215-453-00	METAL 22K 1%	1/6W
R119	1-249-429-11	CARBON 10K 5%	1/4W
R120	1-215-453-00	METAL 22K 1%	1/6W
R122	1-215-882-00	METAL OXIDE 22 5%	2W F
R123	1-215-453-00	METAL 22K 1%	1/6W
R124	1-249-429-11	CARBON 10K 5%	1/4W
R125	1-215-453-00	METAL 22K 1%	1/6W
R127	1-215-882-00	METAL OXIDE 22 5%	2W F
R128	1-249-429-11	CARBON 10K 5%	1/4W
R129	1-249-429-11	CARBON 10K 5%	1/4W
R130	1-215-461-00	METAL 47K 1%	1/6W
R132	1-249-441-11	CARBON 100K 5%	1/4W
R133	1-249-433-11	CARBON 22K 5%	1/4W
R134	1-249-433-11	CARBON 22K 5%	1/4W
R138	1-249-429-11	CARBON 10K 5%	1/4W
R139	1-249-430-11	CARBON 12K 5%	1/4W
R140	1-249-430-11	CARBON 12K 5%	1/4W
R141	1-249-429-11	CARBON 10K 5%	1/4W
R142	1-249-421-11	CARBON 2.2K 5%	1/4W
R153	1-215-886-11	METAL OXIDE 100 5%	2W F
R154	1-249-429-11	CARBON 10K 5%	1/4W
R155	1-215-437-00	METAL 4.7K 1%	1/6W
R156	1-247-903-00	CARBON 1M 5%	1/4W
R157	1-249-425-11	CARBON 4.7K 5%	1/4W
R158	1-249-425-11	CARBON 4.7K 5%	1/4W

VARIABLE, RESISTOR

RV1 1-237-503-21 RES, ADJ, CERMET 10K

*1-627-354-12 J1 BOARD

CAPACITOR

C1 1-136-165-00 FILM 0.1MF 5% 50V

PLUG

CNJ1-1 *1-564-507-11 PLUG, CONNECTOR 4P

DIODE

D1 8-719-812-43 DIODE TLG124A

RESISTOR

R1 1-249-423-11 CARBON 3.3K 5% 1/4W

SWITCH

SI **A** 1-554-472-11 SWITCH, PUSH (1 KEY)

Ref.No Part No. Description Remark

*1-627-355-12 J2 BOARD

VARIABLE, RESISTOR

RV1 1-228-594-00 RES, VAR, CARBON 10K

*1-627-356-13 J3 BOARD

CAPACITOR

C1 1-136-165-00 FILM 0.1MF 5% 50V
C2 1-136-165-00 FILM 0.1MF 5% 50V

RESISTOR

R1 1-249-409-11 CARBON 220 5% 1/4W

VARIABLE, RESISTOR

RV1 1-228-594-00 RES, VAR, CARBON 10K
RV2 1-228-594-00 RES, VAR, CARBON 10K
RV3 1-228-594-00 RES, VAR, CARBON 10K
RV4 1-228-594-00 RES, VAR, CARBON 10K

P BOARD, COMPLETE

4-029-924-01 HOLDER (S) IC
*4-341-751-01 EYELET (EY1-EY5)
*4-341-752-01 EYELET (EY6)
4-391-517-01 SHEET, (C), INSULATOR
4-391-550-01 SCREW (M5X15) (A), LOCK

CAPACITOR

C1 1-126-319-51 ELECT 10MF 20% 250V
C2 1-108-824-00 MYLAR 0.47MF 5% 50V
C3 1-102-228-00 CERAMIC 470PF 10% 500V
C4 1-130-489-00 MYLAR 0.033MF 5% 50V
C5 1-102-030-00 CERAMIC 330PF 10% 500V

C6 1-130-475-00 MYLAR 0.0022MF 5% 50V
C7 1-123-875-11 ELECT 10MF 20% 50V
C8 1-130-471-00 MYLAR 0.001MF 5% 50V
C9 1-124-122-11 ELECT 100MF 20% 25V
C10 1-102-030-00 CERAMIC 330PF 10% 500V

C11 1-136-060-00 FILM 0.047MF 5% 400V
C12 1-136-064-00 FILM 0.002MF 3% 2KV
C13 1-136-075-00 FILM 0.008MF 3% 2KV
C14 1-124-798-11 ELECT 1MF 20% 160V
C15 1-130-473-00 MYLAR 0.0015MF 5% 50V

C16 1-124-122-11 ELECT 100MF 20% 25V
C17 1-102-106-00 CERAMIC 100PF 10% 50V
C18 1-130-479-00 MYLAR 0.0047MF 5% 50V
C19 1-124-513-11 ELECT 47MF 20% 50V
C20 1-124-122-11 ELECT 100MF 20% 25V

C21 1-136-165-00 FILM 0.1MF 5% 50V
C22 1-130-471-00 MYLAR 0.001MF 5% 50V
C23 1-130-471-00 MYLAR 0.001MF 5% 50V
C24 1-136-165-00 FILM 0.1MF 5% 50V
C25 1-136-157-00 FILM 0.022MF 5% 50V

C26 1-123-875-11 ELECT 10MF 20% 50V
C27 1-136-153-00 FILM 0.01MF 5% 50V
C28 1-124-513-11 ELECT 47MF 20% 50V
C29 1-124-513-11 ELECT 47MF 20% 50V

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

DDM-2801C/2802C
DDM-2801C2/2802C2

P

Ref.No	Part No.	Description	Remark		
C30	1-136-153-00	FILM	0.01MF	5%	50V
C31	1-124-513-11	ELECT	47MF	20%	50V
C32	1-124-513-11	ELECT	47MF	20%	50V
C33	1-123-875-11	ELECT	10MF	20%	50V
C34	1-136-165-00	FILM	0.1MF	5%	50V
C35	1-124-513-11	ELECT	47MF	20%	50V
C36	1-136-165-00	FILM	0.1MF	5%	50V
C37	1-124-122-11	ELECT	100MF	20%	25V
C39	1-136-161-00	FILM	0.047MF	5%	50V
C40	1-124-122-11	ELECT	100MF	20%	25V
C41	1-123-875-11	ELECT	10MF	20%	50V
C42	1-136-153-00	FILM	0.01MF	5%	50V
C43	1-130-471-00	MYLAR	0.001MF	5%	50V
C44	1-123-875-11	ELECT	10MF	20%	50V
C45	1-123-875-11	ELECT	10MF	20%	50V
C46	1-126-101-11	ELECT	100MF	20%	10V
C47	1-124-122-11	ELECT	100MF	20%	25V
C48	1-126-101-11	ELECT	100MF	20%	10V
C49	1-123-875-11	ELECT	10MF	20%	50V
C50	1-136-165-00	FILM	0.1MF	5%	50V
C51	1-136-161-00	FILM	0.047MF	5%	50V

PLUG

CNP-1	*1-564-508-11	PLUG CONNECTOR 5P
CNP-2	*1-564-507-11	PLUG CONNECTOR 4P
CNP-3	*1-564-507-11	PLUG CONNECTOR 4P
CNP-4	*1-564-511-11	PLUG CONNECTOR 8P
CNP-5	*1-508-767-00	PIN, CONNECTOR (5MM PITCH) 5P

DIODE

D1	8-719-971-20	DIODE ERC38-06
D2	8-719-939-07	DIODE ERD38-06
D3	8-719-939-07	DIODE ERD38-06
D4	8-719-911-19	DIODE 1SS119
D5	8-719-971-20	DIODE ERC38-06
D6	8-719-973-95	DIODE ERD09-15
D7	8-719-971-20	DIODE ERC38-06
D9	8-719-911-19	DIODE 1SS119
D10	8-719-911-19	DIODE 1SS119
D11	8-719-911-19	DIODE 1SS119
D12	8-719-000-28	THYRISTOR CR02AM-8
D13	8-719-812-41	DIODE TLR124
D14	8-719-000-28	THYRISTOR CR02AM-8
D15	8-719-812-41	DIODE TLR124
D16	8-719-812-41	DIODE TLR124
D17	8-719-000-28	THYRISTOR CR02AM-8
D18	8-719-812-41	DIODE TLR124
D19	8-719-911-19	DIODE 1SS119
D20	8-719-911-19	DIODE 1SS119
D21	8-719-110-31	DIODE RD12ESB2
D22	8-719-109-85	DIODE RD5.1ESB2
D23	8-719-911-19	DIODE 1SS119

IC

IC1	8-759-208-17	IC TC4528BPHB
IC2	8-759-107-91	IC UPC574J
IC3	8-759-990-82	IC TL082CP
IC4	8-759-107-91	IC UPC574J
IC5	8-759-103-93	IC UPC393C
IC6	8-759-103-93	IC UPC393C
IC7	8-759-990-82	IC TL082CP

COIL

L1	1-424-167-11	COIL, CHOKE HORIZONTAL RINGING
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<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
<u>TRANSISTOR</u>			
Q1	8-729-902-41	TRANSISTOR 2SC3318	
	4-391-515-01	SHEET, INSULATING (A) ; (Q1)	
	4-391-547-01	IC HOLDER ; (Q1)	
Q2	8-729-140-96	TRANSISTOR 2SD774-34	
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q4	8-729-140-96	TRANSISTOR 2SD774-34	
Q5	8-729-805-07	TRANSISTOR 2SD1887-CA	
	4-391-515-01	SHEET, INSULATING (A) ; (Q5)	
	4-391-547-01	IC HOLDER ; (Q5)	
Q6	8-729-140-96	TRANSISTOR 2SD774-34	
Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q9	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q10	8-729-900-36	TRANSISTOR DTC124ES	
Q12	8-729-801-88	TRANSISTOR 2SA1221-E	

RESISTOR

R1	1-249-401-11	CARBON	47	5%	1/4W	
R2	1-216-372-11	METAL OXIDE	1.8	5%	2W	F
R3	1-216-427-00	METAL OXIDE	120	5%	1W	F
R4	1-249-425-11	CARBON	4.7K	5%	1/4W	
R5	1-249-417-11	CARBON	1K	5%	1/4W	
R6	1-249-405-11	CARBON	100	5%	1/4W	
R7	1-249-429-11	CARBON	10K	5%	1/4W	
R8	1-249-425-11	CARBON	4.7K	5%	1/4W	
R9	1-249-419-11	CARBON	1.5K	5%	1/4W	
R10	1-249-411-11	CARBON	330	5%	1/4W	
R11	1-249-417-11	CARBON	1K	5%	1/4W	
R12	1-216-380-11	METAL OXIDE	8.2	5%	2W	F
R13	1-249-393-11	CARBON	10	5%	1/4W	F
R14	1-249-417-11	CARBON	1K	5%	1/4W	
R15	1-249-437-11	CARBON	47K	5%	1/4W	
R16	1-249-437-11	CARBON	47K	5%	1/4W	
R17	1-249-420-11	CARBON	1.8K	5%	1/4W	
R18	1-249-429-11	CARBON	10K	5%	1/4W	
R19	1-249-429-11	CARBON	10K	5%	1/4W	
R20	1-249-417-11	CARBON	1K	5%	1/4W	
R21	1-249-417-11	CARBON	1K	5%	1/4W	
R22	1-249-421-11	CARBON	2.2K	5%	1/4W	
R23	1-215-874-11	METAL OXIDE	6.8K	5%	1W	F
R24	1-216-438-11	METAL OXIDE	8.2K	5%	1W	F
R25	Δ	METAL			1/6W	
R26	Δ	METAL			1/6W	
R27	Δ	METAL			1/6W	
R28	1-215-445-00	METAL	10K	1%	1/6W	
R29	1-249-429-11	CARBON	10K	5%	1/4W	
R30	1-247-895-00	CARBON	470K	5%	1/4W	
R31	1-249-429-11	CARBON	10K	5%	1/4W	
R32	1-247-895-00	CARBON	470K	5%	1/4W	
R34	1-249-417-11	CARBON	1K	5%	1/4W	
R35	1-249-425-11	CARBON	4.7K	5%	1/4W	
R36	1-249-417-11	CARBON	1K	5%	1/4W	
R37	1-215-874-11	METAL OXIDE	6.8K	5%	1W	F
R38	1-216-438-11	METAL OXIDE	8.2K	5%	1W	F
R40	1-215-457-00	METAL	33K	1%	1/6W	
R41	Δ	METAL			1/6W	
R42	1-215-437-00	METAL	4.7K	1%	1/6W	
R43	1-215-485-00	METAL	470K	1%	1/6W	
R44	1-215-469-00	METAL	100K	1%	1/6W	
R45	1-249-429-11	CARBON	10K	5%	1/4W	
R46	1-249-429-11	CARBON	10K	5%	1/4W	
R47	1-215-421-00	METAL	1K	1%	1/6W	
R48	1-249-425-11	CARBON	4.7K	5%	1/4W	
R49	1-215-457-00	METAL	33K	1%	1/6W	
R50	Δ	METAL			1/6W	
R51	1-215-437-00	METAL	4.7K	1%	1/6W	

• The components identified by Δ in this manual Should replacement be required, replace only with have been carefully factory-selected for each set in the value originally used. order to satisfy regulations regarding X-ray radiation.

DDM-2801C/2802C DDM-2801C2/2802C2

P R

Les composants identifiés par
une trame et une marque Δ
sont critiques pour la sécurité.
Ne les remplacer que par une
pièce portant le numéro spécifié.

The components identified by
shading and mark Δ are critical
for safety.
Replace only with part number
specified.

Ref.No	Part No.	Description	Remark		
R52	1-215-469-00	METAL	100K	1%	1/6W
R53	1-215-485-00	METAL	470K	1%	1/6W
R54	1-249-429-11	CARBON	10K	5%	1/4W
R55	1-249-429-11	CARBON	10K	5%	1/4W
R56	1-249-425-11	CARBON	4.7K	5%	1/4W
R57	1-215-459-00	METAL	39K	1%	1/6W
R58	1-215-449-00	METAL	15K	1%	1/6W
MR59	△	METAL			1/6W
MR60	△	METAL			1/6W
MR61	△	METAL			1/6W
R62	1-249-437-11	CARBON	47K	5%	1/4W
R63	1-249-421-11	CARBON	2.2K	5%	1/4W
R65	1-214-888-00	METAL	10K	1%	1/2W
R66	1-214-872-00	METAL	2.2K	1%	1/2W
R67	1-214-888-00	METAL	10K	1%	1/2W
R68	1-214-872-00	METAL	2.2K	1%	1/2W
R69	1-249-441-11	CARBON	100K	5%	1/4W
R70	1-247-883-00	CARBON	150K	5%	1/4W
R72	1-215-445-00	METAL	10K	1%	1/6W
R73	1-215-445-00	METAL	10K	1%	1/6W
R74	1-247-883-00	CARBON	150K	5%	1/4W
R75	1-247-883-00	CARBON	150K	5%	1/4W
R77	1-247-895-00	CARBON	470K	5%	1/4W
R78	1-249-429-11	CARBON	10K	5%	1/4W
R79	1-249-429-11	CARBON	10K	5%	1/4W
R80	1-249-429-11	CARBON	10K	5%	1/4W
R81	1-249-429-11	CARBON	10K	5%	1/4W
R82	1-249-417-11	CARBON	1K	5%	1/4W
R85	1-249-429-11	CARBON	10K	5%	1/4W
R86	1-249-429-11	CARBON	10K	5%	1/4W
R87	1-216-390-11	METAL OXIDE	1.2	5%	3W F
R88	1-249-437-11	CARBON	47K	5%	1/4W
R89	1-249-437-11	CARBON	47K	5%	1/4W
R90	1-249-429-11	CARBON	10K	5%	1/4W
R91	1-249-437-11	CARBON	47K	5%	1/4W
R92	1-215-421-00	METAL	1K	1%	1/6W
R93	1-215-465-00	METAL	68K	1%	1/6W
R94	1-215-465-00	METAL	68K	1%	1/6W
R95	1-249-409-11	CARBON	220	5%	1/4W
R96	1-247-887-00	CARBON	220K	5%	1/4W
R97	1-249-409-11	CARBON	220	5%	1/4W
VARIABLE RESISTOR					
RV1	1-237-516-21	RES, ADJ, CERMET 2K			
TRANSFORMER					
T1	1-437-164-11	HDT			
T2	1-437-164-11	HDT			

R BOARD, COMPLETE					

4-029-923-01 SHEET, INSULATING (F)					
4-029-924-01 IC HOLDER (S)					
* 4-341-751-01 EYELET (EY1-EY4)					
4-391-517-01 SHEET, INSULATING (C)					
4-391-547-01 IC HOLDER					
4-391-550-01 SCREW, (M5X15) (A), LOCK					
CAPACITOR					
C1	1-102-074-00	CERAMIC	0.001MF	10%	50V
C2	1-102-973-00	CERAMIC	100PF	5%	50V
C3	1-124-798-11	ELECT	1MF	20%	160V

Ref.No	Part No.	Description	Remark
C4	1-136-060-00	FILM	0.047MF 5% 400V
C5	1-136-103-00	FILM	0.1MF 5% 200V
C6	1-136-108-00	FILM	0.43MF 5% 200V
C7	1-124-126-00	ELECT	47MF 20% 25V
C8	1-102-074-00	CERAMIC	0.001MF 10% 50V
C9	1-102-973-00	CERAMIC	100PF 5% 50V
C10	1-124-798-11	ELECT	1MF 20% 160V
C11	1-136-103-00	FILM	0.1MF 5% 200V
C12	1-136-108-00	FILM	0.43MF 5% 200V
C13	1-136-060-00	FILM	0.047MF 5% 400V
C14	1-124-126-00	ELECT	47MF 20% 25V
C15	1-129-716-00	FILM	0.015MF 10% 400V
C16	1-123-330-00	ELECT	22MF 20% 25V
C17	1-129-716-00	FILM	0.015MF 10% 400V
C18	1-123-330-00	ELECT	22MF 20% 25V
C19	1-129-716-00	FILM	0.015MF 10% 400V
C20	1-123-330-00	ELECT	22MF 20% 25V
C21	1-108-692-11	MYLAR	0.01MF 10% 200V
C22	1-123-330-00	ELECT	22MF 20% 25V
C23	1-108-692-11	MYLAR	0.01MF 10% 200V
C24	1-123-330-00	ELECT	22MF 20% 25V
C25	1-108-692-11	MYLAR	0.01MF 10% 200V
C26	1-123-330-00	ELECT	22MF 20% 25V
C27	1-130-471-00	MYLAR	0.001MF 5% 50V
C28	1-102-978-00	CERAMIC	220PF 5% 50V
C29	1-136-153-00	FILM	0.01MF 5% 50V
C30	1-102-963-00	CERAMIC	33PF 5% 50V
C31	1-102-973-00	CERAMIC	100PF 5% 50V
C32	1-101-880-00	CERAMIC	47PF 5% 50V
C33	1-136-161-00	FILM	0.047MF 5% 50V
C34	1-124-126-00	ELECT	47MF 20% 25V
C35	1-124-126-00	ELECT	47MF 20% 25V
C36	1-136-103-00	FILM	0.1MF 5% 200V
C37	1-136-108-00	FILM	0.43MF 5% 200V
C38	1-126-103-11	ELECT	470MF 20% 16V
C39	1-124-808-51	ELECT	10MF 20% 200V
C40	1-102-110-00	CERAMIC	220PF 10% 50V
C43	1-101-880-00	CERAMIC	47PF 5% 50V
C44	1-124-126-00	ELECT	47MF 20% 25V
C46	1-136-153-00	FILM	0.01MF 5% 50V
C47	1-124-126-00	ELECT	47MF 20% 25V
C49	1-124-126-00	ELECT	47MF 20% 25V
C52	1-124-798-11	ELECT	1MF 20% 160V
C53	1-136-161-00	FILM	0.047MF 5% 50V
C55	1-136-108-00	FILM	0.43MF 5% 200V
C56	1-126-104-11	ELECT	470MF 20% 25V
C57	1-126-104-11	ELECT	470MF 20% 25V
C58	1-126-103-11	ELECT	470MF 20% 16V
C59	1-126-103-11	ELECT	470MF 20% 16V
C60	1-124-126-00	ELECT	47MF 20% 25V
C61	1-126-365-51	ELECT	100MF 20% 100V
C62	1-126-365-51	ELECT	100MF 20% 100V
C63	1-130-048-00	FILM	220PF 5% 50V
C64	1-136-103-00	FILM	0.1MF 5% 200V
C65	1-130-471-00	MYLAR	0.001MF 5% 50V
C66	1-130-048-00	FILM	220PF 5% 50V
C67	1-136-103-00	FILM	0.1MF 5% 200V
C68	1-130-471-00	MYLAR	0.001MF 5% 50V
C70	1-124-126-00	ELECT	47MF 20% 25V
C71	1-136-165-00	FILM	0.1MF 5% 50V
C72	1-136-153-00	FILM	0.01MF 5% 50V
C73	1-136-153-00	FILM	0.01MF 5% 50V
C74	1-123-267-00	ELECT	2.2MF 20% 160V
C75	1-124-006-11	ELECT	10MF 20% 25V
C76	1-136-153-00	FILM	0.01MF 5% 50V

• The components identified by Δ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

Ref.No	Part No.	Description	Remark
C77	1-136-177-00	FILM 1MF 5% 50V	
C78	1-136-153-00	FILM 0.01MF 5% 50V	

PLUG

CNR-1	*1-564-509-11	PLUG CONNECTOR 6P
CNR-2	*1-564-510-11	PLUG CONNECTOR 7P
CNR-3	*1-564-515-11	PLUG CONNECTOR 12P
CNR-4	*1-564-507-11	PLUG CONNECTOR 4P
CNR-5	*1-564-515-11	PLUG CONNECTOR 12P

CNR-6	*1-564-506-11	PLUG CONNECTOR 3P
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DIODE

D1	8-719-911-19	DIODE 1SS119
D2	8-719-911-19	DIODE 1SS119
D3	8-719-911-19	DIODE 1SS119
D4	8-719-911-19	DIODE 1SS119
D5	8-719-971-20	DIODE ERC38-06
D6	8-719-109-85	DIODE RD5.1ES-B2
D7	8-719-911-19	DIODE 1SS119
D8	8-719-971-20	DIODE ERC38-06
D9	8-719-109-85	DIODE RD5.1ES-B2
D10	8-719-911-19	DIODE 1SS119
D11	8-719-971-20	DIODE ERC38-06
D12	8-719-109-85	DIODE RD5.1ES-B2
D13	8-719-911-19	DIODE 1SS119
D14	8-719-971-20	DIODE ERC38-06
D15	8-719-109-85	DIODE RD5.1ES-B2
D16	8-719-911-19	DIODE 1SS119
D17	8-719-971-20	DIODE ERC38-06
D18	8-719-109-85	DIODE RD5.1ES-B2
D19	8-719-911-19	DIODE 1SS119
D20	8-719-971-20	DIODE ERC38-06
D21	8-719-109-85	DIODE RD5.1ES-B2
D22	8-719-812-41	DIODE TLR124
D23	8-719-812-41	DIODE TLR124
D24	8-719-812-41	DIODE TLR124
D25	8-719-109-85	DIODE RD5.1ES-B2
D26	8-719-911-19	DIODE 1SS119
D27	8-719-911-19	DIODE 1SS119
D28	8-719-911-19	DIODE 1SS119
D29	8-719-911-19	DIODE 1SS119
D30	8-719-911-19	DIODE 1SS119
D31	8-719-812-41	DIODE TLR124
D32	8-719-000-28	THYRISTOR CR02AM-8
D33	8-719-000-28	THYRISTOR CR02AM-8
D35	8-719-911-19	DIODE 1SS119
D36	8-719-911-19	DIODE 1SS119
D37	8-719-911-19	DIODE 1SS119
D38	8-719-911-19	DIODE 1SS119
D39	8-719-911-19	DIODE 1SS119
D40	8-719-911-19	DIODE 1SS119
D41	8-719-911-19	DIODE 1SS119
D42	8-719-110-17	DIODE RD10ESB2
<u>IC</u>		
IC1	8-759-133-90	IC UPC339C
IC2	8-759-109-82	IC UPC814C
IC3	8-759-109-82	IC UPC814C
IC4	8-759-982-13	IC RC7812FA
IC5	8-759-179-12	IC UPC7912H
<u>COIL</u>		
L1	1-421-421-00	COIL CHOKE 100UH
L2	1-421-421-00	COIL CHOKE 100UH
L3	1-421-421-00	COIL CHOKE 100UH

Ref.No	Part No.	Description	Remark
L4	1-421-421-00	COIL CHOKE 100UH	

TRANSISTOR

Q1	8-729-891-02	TRANSISTOR 2SC2910
Q2	8-729-891-02	TRANSISTOR 2SC2910
Q3	8-729-216-42	TRANSISTOR 2SA1164
Q4	8-729-802-78	TRANSISTOR 2SC3502
Q5	8-729-802-78	TRANSISTOR 2SC3502
Q6	8-729-804-35	TRANSISTOR 2SA1380
Q7	8-729-133-62	TRANSISTOR 2SC2336B-Q
Q8	8-729-133-62	TRANSISTOR 2SC2336B-Q
Q9	8-729-891-02	TRANSISTOR 2SC2910
Q10	8-729-891-02	TRANSISTOR 2SC2910
Q11	8-729-216-42	TRANSISTOR 2SA1164
Q12	8-729-802-78	TRANSISTOR 2SC3502
Q13	8-729-802-78	TRANSISTOR 2SC3502
Q14	8-729-804-35	TRANSISTOR 2SA1380
Q15	8-729-133-62	TRANSISTOR 2SC2336B-Q
Q16	8-729-133-62	TRANSISTOR 2SC2336B-Q
Q17	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q18	8-729-900-36	TRANSISTOR DTC124ES
Q19	8-729-266-83	TRANSISTOR 2SC2668
Q20	8-729-266-83	TRANSISTOR 2SC2668
Q21	8-729-216-42	TRANSISTOR 2SA1164
Q22	8-729-322-43	TRANSISTOR 2SC4046 DDM-2801C ; Serial No. 2,000,044 and higher DDM-2802C ; Serial No. 2,000,021 and higher DDM-2801C2 ; Serial No. 2,000,050 and higher DDM-2802C2 ; Serial No. 2,000,013 and higher
Q22	8-729-697-92	TRANSISTOR 2SA979 DDM-2801C ; Serial No. 10,091~2,000,043 DDM-2802C ; Serial No. 10,001~2,000,020 DDM-2801C2 ; Serial No. 10,001~2,000,049 DDM-2802C2 ; Serial No. 10,001~2,000,012
Q23	8-729-802-78	TRANSISTOR 2SC3502
Q24	8-729-802-78	TRANSISTOR 2SC3502
Q25	8-729-804-35	TRANSISTOR 2SA1380
Q26	8-729-133-62	TRANSISTOR 2SC2336B-Q
Q27	8-729-133-62	TRANSISTOR 2SC2336B-Q
Q28	8-729-266-83	TRANSISTOR 2SC2668
Q29	8-729-808-73	TRANSISTOR 2SB1274SA-R
	4-382-854-11	SCREW (M3X10), P, SW (+) (Q29)
	4-875-726-00	SHEET, INSULATING (Q29)
Q31	8-729-105-73	TRANSISTOR 2SK523-L2
Q35	8-729-891-02	TRANSISTOR 2SC2910
Q36	8-729-891-02	TRANSISTOR 2SC2910
Q38	8-729-802-78	TRANSISTOR 2SC3502
Q39	8-729-802-78	TRANSISTOR 2SC3502
Q40	8-729-804-35	TRANSISTOR 2SA1380
Q41	8-729-133-62	TRANSISTOR 2SC2336B-Q
Q42	8-729-133-62	TRANSISTOR 2SC2336B-Q
Q43	8-729-107-84	TRANSISTOR 2SC3623A-L
Q44	8-729-309-36	TRANSISTOR 2SA893A
Q45	8-729-309-36	TRANSISTOR 2SA893A
Q46	8-729-207-82	TRANSISTOR 2SC3421-Y
Q47	8-729-207-89	TRANSISTOR 2SA1358-Y
Q48	8-729-301-82	TRANSISTOR 2SC3519-Y
Q49	8-729-301-86	TRANSISTOR 2SA1386-Y
Q50	8-729-107-84	TRANSISTOR 2SC3623A-L
Q51	8-729-309-36	TRANSISTOR 2SA893A
Q52	8-729-309-36	TRANSISTOR 2SA893A
Q53	8-729-207-82	TRANSISTOR 2SC3421-Y
Q54	8-729-207-82	TRANSISTOR 2SC3421-Y
Q55	8-729-207-89	TRANSISTOR 2SA1358-Y
Q56	8-729-301-82	TRANSISTOR 2SC3519-Y
Q57	8-729-301-86	TRANSISTOR 2SA1386-Y
Q58	8-729-207-82	TRANSISTOR 2SC3421-Y

DDM-2801C/2802C

DDM-2801C2/2802C2

R

Ref.No	Part No.	Description	Remark		
RESISTOR					
R1	1-215-421-00	METAL	1K	1%	1/6W
R2	1-215-437-00	METAL	4.7K	1%	1/6W
R3	1-215-421-00	METAL	1K	1%	1/6W
R4	1-215-421-00	METAL	1K	1%	1/6W
R5	1-215-437-00	METAL	4.7K	1%	1/6W
R6	1-249-402-11	CARBON	56	5%	1/4W
R7	1-216-431-11	METAL OXIDE	560	5%	1W F
R8	1-215-421-00	METAL	1K	1%	1/6W
R9	1-249-410-11	CARBON	270	5%	1/4W
R10	1-249-421-11	CARBON	2.2K	5%	1/4W
R11	1-249-417-11	CARBON	1K	5%	1/4W
R12	1-249-417-11	CARBON	1K	5%	1/4W
R13	1-215-409-00	METAL	330	1%	1/6W
R14	1-249-402-11	CARBON	56	5%	1/4W
R15	1-216-463-00	METAL OXIDE	12K	5%	2W F
R16	1-215-897-11	METAL OXIDE	6.8K	5%	2W F
R17	1-249-397-11	CARBON	22	5%	1/4W F
R18	1-249-421-11	CARBON	2.2K	5%	1/4W F
R19	1-215-445-00	METAL	10K	1%	1/6W
R20	1-215-425-00	METAL	1.5K	1%	1/6W
R21	1-249-413-11	CARBON	470	5%	1/4W F
R22	1-249-405-11	CARBON	100	5%	1/4W
R23	1-249-405-11	CARBON	100	5%	1/4W
R24	1-217-481-00	FUSIBLE	10	5%	1W F
R25	1-217-481-00	FUSIBLE	10	5%	1W F
R26	1-214-765-00	METAL	33K	1%	1/4W
R27	1-217-481-00	FUSIBLE	10	5%	1W F
R28	1-249-402-11	CARBON	56	5%	1/4W
R29	1-216-431-11	METAL OXIDE	560	5%	1W F
R30	1-249-417-11	CARBON	1K	5%	1/4W
R31	1-249-411-11	CARBON	330	5%	1/4W
R32	1-249-417-11	CARBON	1K	5%	1/4W
R33	1-249-421-11	CARBON	2.2K	5%	1/4W
R34	1-249-417-11	CARBON	1K	5%	1/4W
R35	1-249-417-11	CARBON	1K	5%	1/4W
R36	1-249-402-11	CARBON	56	5%	1/4W
R37	1-216-463-00	METAL OXIDE	12K	5%	2W F
R38	1-215-897-11	METAL OXIDE	6.8K	5%	2W F
R39	1-249-397-11	CARBON	22	5%	1/4W F
R40	1-215-445-00	METAL	10K	1%	1/6W
R41	1-215-425-00	METAL	1.5K	1%	1/6W
R42	1-249-421-11	CARBON	2.2K	5%	1/4W F
R43	1-249-413-11	CARBON	470	5%	1/4W F
R44	1-249-405-11	CARBON	100	5%	1/4W
R45	1-249-405-11	CARBON	100	5%	1/4W
R46	1-217-481-00	FUSIBLE	10	5%	1W F
R47	1-217-481-00	FUSIBLE	10	5%	1W F
R48	1-214-765-00	METAL	33K	1%	1/4W
R49	1-217-481-00	FUSIBLE	10	5%	1W F
R50	1-249-433-11	CARBON	22K	5%	1/4W
R51	1-249-429-11	CARBON	10K	5%	1/4W
R52	1-247-895-00	CARBON	470K	5%	1/4W
R53	1-249-433-11	CARBON	22K	5%	1/4W
R54	1-249-429-11	CARBON	10K	5%	1/4W
R55	1-247-895-00	CARBON	470K	5%	1/4W
R56	1-249-433-11	CARBON	22K	5%	1/4W
R57	1-249-429-11	CARBON	10K	5%	1/4W
R58	1-247-895-00	CARBON	470K	5%	1/4W
R59	1-249-433-11	CARBON	22K	5%	1/4W
R60	1-249-417-11	CARBON	1K	5%	1/4W
DDM-2801C ; Serial No. 2,000,044 and higher					
DDM-2802C ; Serial No. 2,000,021 and higher					
DDM-2801C2 ; Serial No. 2,000,050 and higher					
DDM-2802C2 ; Serial No. 2,000,013 and higher					

Ref.No	Part No.	Description	Remark		
R60	1-249-425-11	CARBON	4.7K	5%	1/4W
DDM-2801C ; Serial No. 10,091~2,000,043					
DDM-2802C ; Serial No. 10,001~2,000,020					
DDM-2801C2 ; Serial No. 10,001~2,000,049					
DDM-2802C2 ; Serial No. 10,001~2,000,012					
R61	1-249-441-11	CARBON	100K	5%	1/4W
DDM-2801C ; Serial No. 2,000,044 and higher					
DDM-2802C ; Serial No. 2,000,021 and higher					
DDM-2801C2 ; Serial No. 2,000,050 and higher					
DDM-2802C2 ; Serial No. 2,000,013 and higher					
R61	1-249-895-11	CARBON	470K	5%	1/4W
DDM-2801C ; Serial No. 10,091~2,000,043					
DDM-2802C ; Serial No. 10,001~2,000,020					
DDM-2801C2 ; Serial No. 10,001~2,000,049					
DDM-2802C2 ; Serial No. 10,001~2,000,012					
R62	1-249-433-11	CARBON	22K	5%	1/4W
R63	1-249-417-11	CARBON	1K	5%	1/4W
DDM-2801C ; Serial No. 2,000,044 and higher					
DDM-2802C ; Serial No. 2,000,021 and higher					
DDM-2801C2 ; Serial No. 2,000,050 and higher					
DDM-2802C2 ; Serial No. 2,000,013 and higher					
R63	1-249-425-11	CARBON	4.7K	5%	1/4W
DDM-2801C ; Serial No. 10,091~2,000,043					
DDM-2802C ; Serial No. 10,001~2,000,020					
DDM-2801C2 ; Serial No. 10,001~2,000,049					
DDM-2802C2 ; Serial No. 10,001~2,000,012					
R64	1-249-441-11	CARBON	100K	5%	1/4W
DDM-2801C ; Serial No. 2,000,044 and higher					
DDM-2802C ; Serial No. 2,000,021 and higher					
DDM-2801C2 ; Serial No. 2,000,050 and higher					
DDM-2802C2 ; Serial No. 2,000,013 and higher					
R64	1-247-895-11	CARBON	470K	5%	1/4W
DDM-2801C ; Serial No. 10,091~2,000,043					
DDM-2802C ; Serial No. 10,001~2,000,020					
DDM-2801C2 ; Serial No. 10,001~2,000,049					
DDM-2802C2 ; Serial No. 10,001~2,000,012					
R65	1-249-433-11	CARBON	22K	5%	1/4W
R66	1-249-429-11	CARBON	10K	5%	1/4W
R67	1-247-895-00	CARBON	470K	5%	1/4W
R68	1-215-445-00	METAL	10K	1%	1/6W
R69	1-215-429-00	METAL	2.2K	1%	1/6W
DDM-2801C ; Serial No. 2,000,044 and higher					
DDM-2802C ; Serial No. 2,000,021 and higher					
DDM-2801C2 ; Serial No. 2,000,050 and higher					
DDM-2802C2 ; Serial No. 2,000,013 and higher					
R69	1-215-431-00	METAL	2.7K	1%	1/4W
DDM-2801C ; Serial No. 10,091~2,000,043					
DDM-2802C ; Serial No. 10,001~2,000,020					
DDM-2801C2 ; Serial No. 10,001~2,000,049					
DDM-2802C2 ; Serial No. 10,001~2,000,012					
R70	1-249-421-11	CARBON	2.2K	5%	1/4W
R71	1-249-421-11	CARBON	2.2K	5%	1/4W
R72	1-249-421-11	CARBON	2.2K	5%	1/4W
R73	1-249-421-11	CARBON	2.2K	5%	1/4W
R74	1-249-423-11	CARBON	3.3K	5%	1/4W
R75	1-249-429-11	CARBON	10K	5%	1/4W
R76	1-249-421-11	CARBON	2.2K	5%	1/4W
R77	1-215-441-00	METAL	6.8K	1%	1/6W
R78	1-215-445-00	METAL	10K	1%	1/6W
R79	1-249-441-11	CARBON	100K	5%	1/4W
R80	1-249-421-11	CARBON	2.2K	5%	1/4W
R81	1-249-425-11	CARBON	4.7K	5%	1/4W
R82	1-247-752-11	CARBON	1K	5%	1/2W
R83	1-249-421-11	CARBON	2.2K	5%	1/4W
R84	1-249-417-11	CARBON	1K	5%	1/4W
R85	1-249-417-11	CARBON	1K	5%	1/4W
R86	1-249-421-11	CARBON	2.2K	5%	1/4W
R87	1-249-417-11	CARBON	1K	5%	1/4W
R88	1-249-417-11	CARBON	1K	5%	1/4W
R89	1-249-421-11	CARBON	2.2K	5%	1/4W
R90	1-249-421-11	CARBON	2.2K	5%	1/4W

DDM-2801C/2802C
DDM-2801C2/2802C2

R

Ref.No	Part No.	Description	Remark
R91	1-249-427-11	CARBON 6.8K 5% 1/4W	
R92	1-215-437-00	METAL 4.7K 1% 1/6W	
R93	1-215-437-00	METAL 4.7K 1% 1/6W	
R94	1-249-429-11	CARBON 10K 5% 1/4W	
R95	1-216-431-11	METAL OXIDE 560 5% 1W F DDM-2801C; Serial No. 2,000,044 and higher DDM-2802C; Serial No. 2,000,021 and higher DDM-2801C2; Serial No. 2,000,050 and higher DDM-2802C2; Serial No. 2,000,013 and higher	
R95	1-249-417-11	CARBON 1K 5% 1/4W DDM-2801C; Serial No. 10,091~2,000,043 DDM-2802C; Serial No. 10,001~2,000,020 DDM-2801C2; Serial No. 10,001~2,000,049 DDM-2802C2; Serial No. 10,001~2,000,012	
R96	1-249-417-11	CARBON 1K 5% 1/4W	
R97	1-215-429-00	METAL 2.2K 1% 1/6W	
R98	1-249-402-11	CARBON 56 5% 1/4W DDM-2801C; Serial No. 2,000,044 and higher DDM-2802C; Serial No. 2,000,021 and higher DDM-2801C2; Serial No. 2,000,050 and higher DDM-2802C2; Serial No. 2,000,013 and higher	
R98	1-249-399-11	CARBON 33 5% 1/4W DDM-2801C; Serial No. 10,091~2,000,043 DDM-2802C; Serial No. 10,001~2,000,020 DDM-2801C2; Serial No. 10,001~2,000,049 DDM-2802C2; Serial No. 10,001~2,000,012	
R99	1-215-443-00	METAL 8.2K 1% 1/6W DDM-2801C; Serial No. 2,000,044 and higher DDM-2802C; Serial No. 2,000,021 and higher DDM-2801C2; Serial No. 2,000,050 and higher DDM-2802C2; Serial No. 2,000,013 and higher	
R99	1-249-413-11	CARBON 470 5% 1/4W DDM-2801C; Serial No. 10,091~2,000,043 DDM-2802C; Serial No. 10,001~2,000,020 DDM-2801C2; Serial No. 10,001~2,000,049 DDM-2802C2; Serial No. 10,001~2,000,012	
R100	1-215-899-11	METAL OXIDE 15K 5% 2W F	
R101	1-215-899-11	METAL OXIDE 15K 5% 2W F	
R102	1-249-413-11	CARBON 470 5% 1/4W F	
R103	1-249-405-11	CARBON 100 5% 1/4W	
R104	1-249-405-11	CARBON 100 5% 1/4W	
R105	1-217-481-00	FUSIBLE 10 5% 1W F	
R106	1-217-481-00	FUSIBLE 10 5% 1W F	
R107	1-215-453-00	METAL 22K 1% 1/6W	
R108	1-217-481-00	FUSIBLE 10 5% 1W F	
R109	1-249-421-11	CARBON 2.2K 5% 1/4W	
R110	1-249-421-11	CARBON 2.2K 5% 1/4W	
R111	1-249-421-11	CARBON 2.2K 5% 1/4W	
R112	1-249-417-11	CARBON 1K 5% 1/4W	
R113	1-215-445-00	METAL 10K 1% 1/6W	
R114	1-215-429-00	METAL 2.2K 1% 1/6W	
R116	1-249-425-11	CARBON 4.7K 5% 1/4W	
R117	1-249-425-11	CARBON 4.7K 5% 1/4W	
R118	1-215-453-00	METAL 22K 1% 1/6W	
R120	1-215-445-00	METAL 10K 1% 1/6W	
R121	1-215-445-00	METAL 10K 1% 1/6W	
R122	1-249-470-11	CARBON 0.47 5% 1/2W F	
R123	1-249-429-11	CARBON 10K 5% 1/4W	
R124	1-249-417-11	CARBON 1K 5% 1/4W	
R125	1-247-887-00	CARBON 220K 5% 1/4W	
R126	1-249-421-11	CARBON 2.2K 5% 1/4W	
R127	1-249-421-11	CARBON 2.2K 5% 1/4W	
R128	1-249-421-11	CARBON 2.2K 5% 1/4W	
R129	1-247-903-00	CARBON 1M 5% 1/4W	
R130	1-247-895-00	CARBON 470K 5% 1/4W	
R131	1-249-405-11	CARBON 100 5% 1/4W	
R132	1-249-401-11	CARBON 47 5% 1/4W	
R136	1-249-417-11	CARBON 1K 5% 1/4W	
R137	1-249-417-11	CARBON 1K 5% 1/4W	

Ref.No	Part No.	Description	Remark
R138	1-215-441-00	METAL 6.8K 1% 1/6W	
R139	1-249-402-11	CARBON 56 5% 1/4W	
R140	1-216-431-11	METAL OXIDE 560 5% 1W F	
R141	1-249-417-11	CARBON 1K 5% 1/4W	
R143	1-249-417-11	CARBON 1K 5% 1/4W	
R147	1-215-896-00	METAL OXIDE 4.7K 5% 2W F	
R148	1-215-896-00	METAL OXIDE 4.7K 5% 2W F	
R149	1-249-397-11	CARBON 22 5% 1/4W F	
R150	1-249-402-11	CARBON 56 5% 1/4W	
R151	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R152	1-215-445-00	METAL 10K 1% 1/6W	
R153	1-215-419-00	METAL 820 1% 1/6W	
R154	1-249-413-11	CARBON 470 5% 1/4W F	
R155	1-249-405-11	CARBON 100 5% 1/4W	
R156	1-249-405-11	CARBON 100 5% 1/4W	
R157	1-217-481-00	FUSIBLE 10 5% 1W F	
R158	1-217-481-00	FUSIBLE 10 5% 1W F	
R159	1-214-769-00	METAL 47K 1% 1/4W	
R160	1-213-056-11	FUSIBLE 6.8 5% 1W F	
R162	1-249-441-11	CARBON 100K 5% 1/4W	
R163	1-249-433-11	CARBON 22K 5% 1/4W	
R164	1-215-437-00	METAL 4.7K 1% 1/6W	
R165	1-249-429-11	CARBON 10K 5% 1/4W	
R166	1-247-764-11	CARBON 10K 5% 1/2W	
R167	1-249-417-11	CARBON 1K 5% 1/4W	
R168	1-249-417-11	CARBON 1K 5% 1/4W	
R169	1-216-461-00	METAL OXIDE 5.6K 5% 2W F	
R170	1-249-393-11	CARBON 10 5% 1/4W F	
R171	1-249-405-11	CARBON 100 5% 1/4W	
R172	1-249-421-11	CARBON 2.2K 5% 1/4W	
R173	1-249-421-11	CARBON 2.2K 5% 1/4W	
R174	1-249-402-11	CARBON 56 5% 1/4W F	
R175	1-249-405-11	CARBON 100 5% 1/4W	
R176	1-249-405-11	CARBON 100 5% 1/4W	
R177	1-217-465-00	FUSIBLE 0.47 10% 1W F	
R178	1-217-465-00	FUSIBLE 0.47 10% 1W F	
R179	1-215-911-11	METAL OXIDE 100 5% 3W F	
R180	1-216-389-11	METAL OXIDE 1 5% 3W F	
R181	1-215-429-00	METAL 2.2K 1% 1/6W	
R182	1-249-433-11	CARBON 22K 5% 1/4W	
R183	1-215-437-00	METAL 4.7K 1% 1/6W	
R184	1-215-445-00	METAL 10K 1% 1/6W	
R185	1-247-764-11	CARBON 10K 5% 1/2W	
R186	1-249-417-11	CARBON 1K 5% 1/4W	
R187	1-249-417-11	CARBON 1K 5% 1/4W	
R189	1-216-461-00	METAL OXIDE 5.6K 5% 2W F	
R190	1-249-393-11	CARBON 10 5% 1/4W F	
R191	1-249-405-11	CARBON 100 5% 1/4W	
R192	1-249-421-11	CARBON 2.2K 5% 1/4W	
R193	1-249-421-11	CARBON 2.2K 5% 1/4W	
R194	1-249-402-11	CARBON 56 5% 1/4W F	
R195	1-249-405-11	CARBON 100 5% 1/4W	
R196	1-249-405-11	CARBON 100 5% 1/4W	
R197	1-217-465-00	FUSIBLE 0.47 10% 1W F	
R198	1-217-465-00	FUSIBLE 0.47 10% 1W F	
R199	1-215-911-11	METAL OXIDE 100 5% 3W F	
R200	1-216-389-11	METAL OXIDE 1 5% 3W F	
R201	1-215-429-00	METAL 2.2K 1% 1/6W	
R202	1-249-393-11	CARBON 10 5% 1/4W	
R203	1-249-405-11	CARBON 100 5% 1/4W	
R205	1-249-417-11	CARBON 1K 5% 1/4W	
R206	1-249-417-11	CARBON 1K 5% 1/4W	
R207	1-249-397-11	CARBON 22 5% 1/4W F	
R208	1-215-445-00	METAL 10K 1% 1/6W	
R209	1-215-457-00	METAL 33K 1% 1/6W	

DDM-2801C/2802C DDM-2801C2/2802C2

R T F

Les composants identifiés par
une trame et une marque Δ
sont critiques pour la sécurité.
Ne les remplacer que par une
pièce portant le numéro spécifié.

The components identified by
shading and mark Δ are critical
for safety.
Replace only with part number
specified.

Ref.No	Part No.	Description	Remark
R210	1-249-428-11	CARBON 8.2K 5% 1/4W	
R215	1-247-903-00	CARBON 1M 5% 1/4W	

VARIABLE RESISTOR

RV1 1-237-504-21 RES, ADJ, CERMET 20K

T BOARD, COMPLETE *****

CAPACITOR

C1	1-124-261-00	ELECT 10MF 20% 50V	
C2	1-124-261-00	ELECT 10MF 20% 50V	
C3	1-124-261-00	ELECT 10MF 20% 50V	
C4	1-124-261-00	ELECT 10MF 20% 50V	

PLUG

CNT-1 *1-564-512-11 PLUG CONNECTOR 9P
CNT-2 *1-564-509-11 PLUG CONNECTOR 6P
CNT-3 *1-564-510-11 PLUG CONNECTOR 7P
CNT-4 *1-564-509-11 PLUG CONNECTOR 6P
CNT-5 *1-564-509-11 PLUG CONNECTOR 6P

CNT-6 *1-564-507-11 PLUG CONNECTOR 4P
CNT-7 *1-564-507-11 PLUG CONNECTOR 4P
CNT-8 *1-564-515-11 PLUG CONNECTOR 12P
CNT-9 *1-564-511-11 PLUG CONNECTOR 8P
CNT-10 *1-564-515-11 PLUG CONNECTOR 12P

CNT-11 *1-564-512-11 PLUG CONNECTOR 9P
CNT-12 *1-564-514-11 PLUG CONNECTOR 11P
CNT-13 *1-564-513-11 PLUG CONNECTOR 10P
CNT-14 *1-564-505-11 PLUG CONNECTOR 2P

DIODE

D1 8-719-911-19 DIODE 1SS119
D2 8-719-911-19 DIODE 1SS119
D3 8-719-911-19 DIODE 1SS119
D4 8-719-911-19 DIODE 1SS119
D5 8-719-109-85 DIODE RDS1ESB2

D6 8-719-812-41 DIODE TLR124
D7 8-719-812-41 DIODE TLR124
D8 8-719-812-41 DIODE TLR124
D9 8-719-812-41 DIODE TLR124
D10 8-719-812-41 DIODE TLR124

D11 8-719-812-41 DIODE TLR124
D12 8-719-812-41 DIODE TLR124
D13 8-719-812-43 DIODE TLG124A
D14 8-719-812-43 DIODE TLG124A
D15 8-719-812-41 DIODE TLR124

D16 8-719-812-41 DIODE TLR124
D17 8-719-812-41 DIODE TLR124
D18 8-719-812-41 DIODE TLR124
D19 8-719-812-41 DIODE TLR124
D20 8-719-812-41 DIODE TLR124

D21 8-719-812-41 DIODE TLR124
D22 8-719-812-41 DIODE TLR124
D23 8-719-911-19 DIODE 1SS119
D24 8-719-911-19 DIODE 1SS119
D25 8-719-911-19 DIODE 1SS119

D26 8-719-911-19 DIODE 1SS119
D27 8-719-911-19 DIODE 1SS119
D28 8-719-911-19 DIODE 1SS119
D29 8-719-911-19 DIODE 1SS119
D30 8-719-911-19 DIODE 1SS119

D31 8-719-911-19 DIODE 1SS119

Ref.No	Part No.	Description	Remark
D32	8-719-911-19	DIODE 1SS119	

IC

IC1 8-759-133-90 IC UPC339C
IC2 8-759-133-90 IC UPC339C
IC3 8-759-202-98 IC TC74HC166P

TRANSISTOR

Q1 8-729-119-78 TRANSISTOR 2SC2785-HFE
Q2 8-729-900-36 TRANSISTOR DTC124ES

RESISTOR

R1 1-215-445-00 METAL 10K 1% 1/6W
R2 1-215-431-00 METAL 2.7K 1% 1/6W
R3 1-215-445-00 METAL 10K 1% 1/6W
R6 1-247-883-00 CARBON 150K 5% 1/4W
R7 1-247-883-00 CARBON 150K 5% 1/4W

R8 1-249-427-11 CARBON 6.8K 5% 1/4W
R9 1-247-881-00 CARBON 120K 5% 1/4W
R10 1-247-881-00 CARBON 120K 5% 1/4W
R11 1-249-428-11 CARBON 8.2K 5% 1/4W
R12 1-249-439-11 CARBON 68K 5% 1/4W

R13 1-249-439-11 CARBON 68K 5% 1/4W
R14 1-249-430-11 CARBON 12K 5% 1/4W
R15 1-249-437-11 CARBON 47K 5% 1/4W
R16 1-249-427-11 CARBON 6.8K 5% 1/4W
R18 1-249-434-11 CARBON 27K 5% 1/4W

R19 1-249-428-11 CARBON 8.2K 5% 1/4W
R20 1-249-427-11 CARBON 6.8K 5% 1/4W
R21 1-249-423-11 CARBON 3.3K 5% 1/4W
R22 1-215-429-00 METAL 2.2K 1% 1/6W
R23 1-249-421-11 CARBON 2.2K 5% 1/4W

R24 1-249-417-11 CARBON 1K 5% 1/4W
R29 1-249-441-11 CARBON 100K 5% 1/4W
R30 1-249-421-11 CARBON 2.2K 5% 1/4W
R31 1-249-421-11 CARBON 2.2K 5% 1/4W
R32 1-249-429-11 CARBON 10K 5% 1/4W

R33 1-249-417-11 CARBON 1K 5% 1/4W
R34 1-249-417-11 CARBON 1K 5% 1/4W
R35 1-249-417-11 CARBON 1K 5% 1/4W
R36 1-249-417-11 CARBON 1K 5% 1/4W
R37 1-249-417-11 CARBON 1K 5% 1/4W

R38 1-249-417-11 CARBON 1K 5% 1/4W
R39 1-249-417-11 CARBON 1K 5% 1/4W
R40 1-249-417-11 CARBON 1K 5% 1/4W
R41 1-249-417-11 CARBON 1K 5% 1/4W
R42 1-249-417-11 CARBON 1K 5% 1/4W

R43 1-249-417-11 CARBON 1K 5% 1/4W
R44 1-249-417-11 CARBON 1K 5% 1/4W
R45 1-249-417-11 CARBON 1K 5% 1/4W
R46 1-214-921-00 CARBON 220K 5% 1/2W

F BOARD

*3-648-409-00 HANDLE, (1)
*4-341-751-01 EYELET (EY9-EY12)
*4-341-752-01 EYELET (EY1-EY8)
4-391-550-01 SCREW (M5X15) (A), LOCK

CAPACITOR

C1	Δ 1-136-527-12	FILM 0.47MF 20% 250V
C2	Δ 1-136-185-12	FILM 0.22MF 20% 250V
C3	Δ 1-161-953-52	CERAMIC 0.0047MF 20% 400V

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

DDM-2801C/2802C
DDM-2801C2/2802C2

F H

Ref.No	Part No.	Description	Remark
C4	Δ 1-161-953-52	CERAMIC	0.0047MF 20% 400V
C5	Δ 1-161-953-52	CERAMIC	0.0047MF 20% 400V
C6	Δ 1-161-953-52	CERAMIC	0.0047MF 20% 400V
C7	Δ 1-161-953-52	CERAMIC	0.0047MF 20% 400V
C8	Δ 1-161-953-52	CERAMIC	0.0047MF 20% 400V

C9	1-162-599-12	CERAMIC	0.0047MF 20% 400V
C10	1-162-599-12	CERAMIC	0.0047MF 20% 400V
C11	1-125-611-11	ELECT	1000MF 20% 250V
C12	1-125-611-11	ELECT	1000MF 20% 250V
C13	1-125-611-11	ELECT	1000MF 20% 250V

C14	1-125-611-11	ELECT	1000MF 20% 250V
C17	1-129-749-11	FILM	0.068MF 10% 400V
C19	1-162-318-11	CERAMIC	0.001MF 10% 500V
C20	1-124-571-00	ELECT	270MF 20% 25V
C21	1-126-630-11	ELECT	82MF 20% 25V

C23	1-123-875-11	ELECT	10MF 20% 50V
C24	1-162-318-11	CERAMIC	0.001MF 10% 500V
C25	1-124-520-11	ELECT	3300MF 20% 10V
C26	1-124-567-00	ELECT	1200MF 20% 10V
C29	1-126-630-11	ELECT	82MF 20% 25V

C37	1-126-630-11	ELECT	82MF 20% 25V
C40	1-162-599-12	CERAMIC	0.0047MF 20% 400V
C41	1-162-599-12	CERAMIC	0.0047MF 20% 400V
C42	1-162-599-12	CERAMIC	0.0047MF 20% 400V
C43	1-162-599-12	CERAMIC	0.0047MF 20% 400V

PLUG

CNF-1	*1-506-347-21	PIN, CONNECTOR 4P
CNF-2	*1-506-348-XX	CONNECTOR PIN 3P
CNF-5	*1-508-784-00	PIN, CONNECTOR (5MM PITCH) 1P

DIODE

D1	8-719-500-16	DIODE D5SB60
	4-381-906-01	SPRING (F), (D1)
	4-391-515-01	SHEET (A), INSULATOR, (D1)
D2	8-719-300-33	DIODE RU-3AM
D3	8-719-911-19	DIODE 1SS119
D4	8-719-110-41	DIODE RD15ESB2
D5	8-719-000-28	THYRISTOR CR02AM-8

D6	8-719-981-00	DIODE ERC81-004
D7	8-719-911-19	DIODE 1SS119

IC

IC1	8-749-920-45	IC MA1050
	4-381-906-01	SPRING (F), (IC1)
	4-391-515-01	SHEET (A), INSULATOR, (IC1)
IC2	8-719-939-00	DIODE PC111S
IC3	8-749-920-44	IC SE-012N
IC4	8-749-920-43	IC SI-3050CA
	4-875-726-00	SHEET, INSULATING, (IC4)
	4-363-146-00	HEAT SINK, V. OUT, (IC4)
	4-382-854-11	SCREW (M3X10), P, SW (+), (IC4)

COIL

L1	1-459-406-00	COIL (WITH CORE) COIL	32UH
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TRANSISTOR

Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q3	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q4	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE

RESISTOR

R1	Δ 1-202-719-91	SOLID	1M	10%	1/2W	
R2	1-215-927-00	METAL OXIDE	47K	5%	3W	F
R3	1-215-927-00	METAL OXIDE	47K	5%	3W	F

Ref.No	Part No.	Description	Remark
R6	1-215-927-00	METAL OXIDE	47K 5% 3W F
R7	1-202-838-00	SOLID	100K 10% 1/2W
R8	1-215-865-11	METAL OXIDE	220 5% 1W F
R9	1-215-863-11	METAL OXIDE	100 5% 1W F
R10	1-247-708-11	CARBON	470 5% 1/4W

R12	1-249-419-11	CARBON	1.5K 5% 1/4W
R13	1-249-429-11	CARBON	10K 5% 1/4W
R15	1-249-417-11	CARBON	1K 5% 1/4W
R16	1-249-425-11	CARBON	4.7K 5% 1/4W
R18	1-249-429-11	CARBON	10K 5% 1/4W

R19	1-249-429-11	CARBON	10K 5% 1/4W
R20	1-247-750-11	CARBON	680 5% 1/2W
R21	1-216-473-11	METAL OXIDE	56 5% 3W F
R22	1-249-425-11	CARBON	4.7K 5% 1/4W
R23	1-249-425-11	CARBON	4.7K 5% 1/4W
R24	1-249-409-11	CARBON	220 5% 1/4W

RELAY

RY1	Δ 1-515-516-12	RELAY
RY2	Δ 1-515-450-21	RELAY, POWER

TRANSFORMER

T1	Δ 1-421-944-11	TRANSFORMER, LINE FILTER
T2	Δ 1-421-944-11	TRANSFORMER, LINE FILTER
T3	1-424-022-11	TRANSFORMER, LINE FILTER
T4	1-424-166-11	RCT

THERMISTOR

TH1	Δ 1-800-820-12	THERMISTOR, POWER
TH2	Δ 1-800-416-11	THERMISTOR (MI THERMISTOR) DDM-2801C, 2802C only
THP1	Δ 1-800-686-33	THERMISTOR (POSITIVE)

VARISTOR

VA1	Δ 1-807-180-11	VARISTOR SNR-14A300K
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H BOARD

PLUG

CN1	1-563-794-11	CONNECTOR, D-SUB (RECEPTACLE) 15P
CN2	*1-563-732-11	SOCKET, ROUND TYPE 8P
CNH-1	*1-564-514-11	CONNECTOR PLUG 11P
CNH-2	*1-564-507-11	CONNECTOR PLUG 4P

DIODE

D1	8-719-109-85	DIODE RD5.1ESB2
D2	8-719-109-85	DIODE RD5.1ESB2
D3	8-719-109-85	DIODE RD5.1ESB2
D4	8-719-109-85	DIODE RD5.1ESB2
D5	8-719-109-85	DIODE RD5.1ESB2
DDM-2801 only; Serial No. 10,031 and higher		

RESISTOR

R1	1-249-405-11	CARBON	100	5%	1/4W
R2	1-249-405-11	CARBON	100	5%	1/4W
R3	1-249-405-11	CARBON	100	5%	1/4W
R4	1-249-405-11	CARBON	100	5%	1/4W
R5	1-249-405-11	CARBON	100	5%	1/4W
DDM-2801C only; Serial No. 10,031 and higher					

DDM-2801C/2802C DDM-2801C2/2802C2

L **G**

Ref.No Part No. Description Remark

L BOARD

PLUG

CNL-1 *1-564-507-11 CONNECTOR PLUG 4P

DIODE

D1 8-719-812-43 DIODE TLG124A
4-374-906-01 LED HOLDER (TV/V), (D1)
D2 8-719-812-41 DIODE TLR124
4-374-906-01 LED HOLDER (TV/V), (D2)

RESISTOR

R1 1-249-421-11 CARBON 2.2K 5% 1/4W
R2 1-249-421-11 CARBON 2.2K 5% 1/4W

G BOARD

*3-673-676-41 RAIL, GUIDE, PC BOARD
*4-341-751-01 EYELET (EY3-EY8)
*4-341-752-01 EYELET (EY1,EY2)
4-391-515-01 SHEET, (A), INSULATOR
4-391-518-01 SHEET, (D), INSULATOR
4-391-550-01 SCREW, (M5X15) (A), LOCK

CAPACITOR

C1 1-125-541-11 ELECT (BLOCK) 470MF 20% 400V
C2 1-129-702-00 FILM 0.001MF 10% 630V
C3 1-129-702-00 FILM 0.001MF 10% 630V
C4 1-136-092-00 FILM 0.0072MF 3% 2KV
C5 1-136-545-11 FILM 0.0078MF 3% 2KV
C6 1-136-545-11 FILM 0.0078MF 3% 2KV
C7 1-124-526-00 ELECT 1800MF 20% 25V
C8 1-124-526-00 ELECT 1800MF 20% 25V
C9 1-124-526-00 ELECT 1800MF 20% 25V
C10 1-124-526-00 ELECT 1800MF 20% 25V
C11 1-124-491-11 ELECT 680MF 20% 25V
C12 1-124-491-11 ELECT 680MF 20% 25V
C15 1-124-567-00 ELECT 1200MF 20% 10V
C16 1-126-525-11 ELECT 560MF 20% 63V
C17 1-126-524-11 ELECT 180MF 20% 63V
C18 1-126-104-11 ELECT 470MF 20% 35V
C19 1-126-104-11 ELECT 470MF 20% 35V
C20 1-126-525-11 ELECT 560MF 20% 63V
C21 1-126-524-11 ELECT 180MF 20% 63V
C22 1-126-104-11 ELECT 470MF 20% 35V
C23 1-126-104-11 ELECT 470MF 20% 35V
C24 1-124-795-11 ELECT 33MF 20% 100V
C25 1-126-523-11 ELECT 47MF 20% 250V
C26 1-126-523-11 ELECT 47MF 20% 250V
C27 1-126-523-11 ELECT 47MF 20% 250V
C28 1-126-523-11 ELECT 47MF 20% 250V
C29 1-124-603-11 ELECT 390MF 20% 100V
C30 1-124-603-11 ELECT 390MF 20% 100V
C31 1-126-247-11 ELECT 560MF 20% 6.3V
C32 1-126-247-11 ELECT 560MF 20% 6.3V
C33 1-126-247-11 ELECT 560MF 20% 6.3V
C34 1-126-247-11 ELECT 560MF 20% 6.3V
C35 1-162-318-11 CERAMIC 0.001MF 10% 500V
C36 1-162-318-11 CERAMIC 0.001MF 10% 500V
C37 1-162-318-11 CERAMIC 0.001MF 10% 500V
C38 1-162-318-11 CERAMIC 0.001MF 10% 500V

Ref.No Part No. Description Remark

C41 1-162-318-11 CERAMIC 0.001MF 10% 500V
C42 1-162-318-11 CERAMIC 0.001MF 10% 500V
C43 1-162-318-11 CERAMIC 0.001MF 10% 500V
C44 1-162-318-11 CERAMIC 0.001MF 10% 500V
C45 1-162-318-11 CERAMIC 0.001MF 10% 500V

C46 1-162-318-11 CERAMIC 0.001MF 10% 500V
C47 1-162-318-11 CERAMIC 0.001MF 10% 500V
C48 1-162-318-11 CERAMIC 0.001MF 10% 500V
C49 1-162-318-11 CERAMIC 0.001MF 10% 500V
C50 1-164-143-11 CERAMIC 0.001MF 10% 1KV

C51 1-164-143-11 CERAMIC 0.001MF 10% 1KV
C52 1-164-143-11 CERAMIC 0.001MF 10% 1KV
C53 1-164-143-11 CERAMIC 0.001MF 10% 1KV
C54 1-164-143-11 CERAMIC 0.001MF 10% 1KV
C55 1-164-143-11 CERAMIC 0.001MF 10% 1KV

C56 1-164-143-11 CERAMIC 0.001MF 10% 1KV
C57 1-164-143-11 CERAMIC 0.001MF 10% 1KV
C58 1-164-143-11 CERAMIC 0.001MF 10% 1KV
C59 1-164-143-11 CERAMIC 0.001MF 10% 1KV
C60 1-164-143-11 CERAMIC 0.001MF 10% 1KV

C61 1-164-143-11 CERAMIC 0.001MF 10% 1KV
C62 1-136-619-11 FILM 0.0016MF 3% 2KV
C66 1-106-383-00 MYLAR 0.047MF 10% 100V
C67 1-108-427-51 MYLAR 0.033MF 10% 200V

DIODE

D1 8-719-970-87 DIODE ERA38-06
D2 8-719-970-87 DIODE ERA38-06
D3 8-719-110-39 DIODE RD15ESB1
D4 8-719-110-39 DIODE RD15ESB1
D5 8-719-110-39 DIODE RD15ESB1
D6 8-719-110-39 DIODE RD15ESB1
D7 8-719-911-19 DIODE ISS119
D8 8-719-911-19 DIODE ISS119
D9 8-719-500-41 DIODE D8LCA20
4-381-904-01 SPRING (C), (D9)
D10 8-719-500-42 DIODE D8LCA20R
4-381-904-01 SPRING (C), (D10)
D12 8-719-981-00 DIODE ERC81-004
D13 8-719-500-41 DIODE D8LCA20
4-875-726-00 SHEET, INSULATING, (D13)
4-382-854-11 SCREW (M3X10) P, SW (+), (D13)
D14 8-719-500-42 DIODE D8LCA20R
4-875-726-00 SHEET, INSULATING, (D14)
4-382-854-11 SCREW (M3X10) P, SW (+), (D14)
D15 8-719-500-42 DIODE D8LCA20R
4-875-726-00 SHEET, INSULATING, (D15)
4-382-854-11 SCREW (M3X10) P, SW (+), (D15)
D16 8-719-500-41 DIODE D8LCA20
4-875-726-00 SHEET, INSULATING, (D16)
4-382-854-11 SCREW (M3X10) P, SW (+), (D16)

D17 8-719-300-33 DIODE RU-3AM
D18 8-719-500-41 DIODE D8LCA20
D19 8-719-500-42 DIODE D8LCA20R
D20 8-719-500-42 DIODE D8LCA20R
4-381-904-01 SPRING (C), (D20)
D21 8-719-500-41 DIODE D8LCA20
4-381-904-01 SPRING (C), (D21)
D22 8-719-500-41 DIODE D8LCA20
4-381-904-01 SPRING (C), (D22)
D23 8-719-500-42 DIODE D8LCA20R
4-381-904-01 SPRING (C), (D23)

COIL

L1 1-459-484-00 COIL (WITH CORE) 35UH
L2 1-459-484-00 COIL (WITH CORE) 35UH
L3 1-459-406-00 COIL (WITH CORE) 32UH
L4 1-459-406-00 COIL (WITH CORE) 32UH

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

DDM-2801C/2802C
DDM-2801C2/2802C2

G GA

Ref.No	Part No.	Description	Remark
L5	1-459-406-00	COIL (WITH CORE)	32UH
L6	1-459-406-00	COIL (WITH CORE)	32UH
L7	1-459-406-00	COIL (WITH CORE)	32UH
L8	1-459-406-00	COIL (WITH CORE)	32UH
L9	1-459-406-00	COIL (WITH CORE)	32UH
L12	1-410-682-31	INDUCTOR	470UH
L13	1-410-682-31	INDUCTOR	470UH

TRANSISTOR

Q1	8-729-321-59	TRANSISTOR 2SK1170	
	4-391-547-01	IC HOLDER, (Q1)	
Q2	8-729-321-59	TRANSISTOR 2SK1170	
	4-391-547-01	IC HOLDER, (Q2)	
Q3	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q4	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q5	8-729-140-96	TRANSISTOR 2SD774-34	
Q6	8-729-140-96	TRANSISTOR 2SD774-34	

RESISTOR

R3	1-216-353-00	METAL OXIDE	2.2	5%	1W	F
R4	1-216-353-00	METAL OXIDE	2.2	5%	1W	F
R5	1-214-657-00	METAL	1	1%	1/4W	
R6	1-214-657-00	METAL	1	1%	1/4W	
R7	1-249-413-11	CARBON	470	5%	1/4W	
R8	1-249-413-11	CARBON	470	5%	1/4W	
R9	1-249-393-11	CARBON	10	5%	1/4W	
R10	1-249-393-11	CARBON	10	5%	1/4W	
R11	1-249-411-11	CARBON	330	5%	1/4W	
R12	1-249-411-11	CARBON	330	5%	1/4W	
R13	1-217-241-00	WIREWOUND	0.22	10%	3W	F
R14	1-217-241-00	WIREWOUND	0.22	10%	3W	F
R15	1-207-645-00	WIREWOUND	0.47	10%	3W	F
R16	1-207-645-00	WIREWOUND	0.47	10%	3W	F
R18	1-217-418-00	FUSIBLE	0.47	10%	1/2W	F
R19	1-249-382-11	CARBON	1.2	5%	1/4W	F
R20	1-215-440-00	METAL	6.2K	1%	1/6W	
R21	1-215-465-00	METAL	68K	1%	1/6W	
R22	1-215-453-00	METAL	22K	1%	1/6W	
R23	1-215-455-00	METAL	27K	1%	1/6W	
R24	1-214-903-00	METAL	39K	1%	1/2W	
R25	1-214-902-00	METAL	36K	1%	1/2W	
R26	1-215-460-00	METAL	43K	1%	1/6W	
R27	1-215-464-00	METAL	62K	1%	1/6W	
R28	1-214-894-00	METAL	18K	1%	1/2W	
R29	1-214-894-00	METAL	18K	1%	1/2W	
R30 Δ		METAL			1/6W	
R31 Δ		METAL			1/6W	
R32	1-215-475-00	METAL	180K	1%	1/6W	
R33	1-215-469-00	METAL	100K	1%	1/6W	
R43	1-249-440-11	CARBON	82K	5%	1/4W	
R44	1-249-421-11	CARBON	2.2K	5%	1/4W	
R52	1-249-394-11	CARBON	12	5%	1/4W	
R53	1-249-394-11	CARBON	12	5%	1/4W	

TRANSFORMER

T1	1-424-158-11	TRANSFORMER, CONVERTER DRIVE	
T2	1-424-158-11	TRANSFORMER, CONVERTER DRIVE	
T3	1-424-162-11	TRANSFORMER, CONVERTER POWER INSULATED	
T4	1-424-164-11	TRANSFORMER, POWER REGULATION	
T5	1-424-157-11	TRANSFORMER, HEATER	
T6	1-424-159-11	TRANSFORMER, POWER OUTPUT	
T7	1-424-160-11	TRANSFORMER, POWER REGULATION	
T8	1-424-161-11	TRANSFORMER, POWER INSULATED	
T9	1-424-165-11	TRANSFORMER, POWER REGULATION	
T10	1-424-156-11	TRANSFORMER, POWER OUTPUT	

Ref.No	Part No.	Description	Remark
T11	1-424-161-11	TRANSFORMER, POWER INSULATED	
T12	1-424-163-11	TRANSFORMER, POWER REFULATION	

*1-627-365-11 GA BOARD

*1-564-347-00 PLUG (L TYPE) 3P
*1-564-349-00 PLUG (L TYPE) 7P

CAPACITOR

C101	1-126-630-11	ELECT	82MF	20%	25V
C102	1-126-630-11	ELECT	82MF	20%	25V
C103	1-126-096-11	ELECT	10MF	20%	25V
C104	1-126-096-11	ELECT	10MF	20%	25V
C105	1-136-153-00	FILM	0.01MF	5%	50V
C106	1-130-471-00	MYLAR	0.001MF	5%	50V
C107	1-102-973-00	CERAMIC	100PF	5%	50V
C108	1-102-965-00	CERAMIC	39PF	5%	50V
C109	1-130-471-00	FILM	0.001MF	5%	50V
C110	1-136-163-00	FILM	0.068MF	5%	50V
C111	1-136-165-00	FILM	0.1MF	5%	50V

DIODE

D101	8-719-000-28	THYRISTOR CR02AM-8	
D102	8-719-911-19	DIODE 1SS119	

IC

IC101	8-759-906-62	IC MB3759-SNY	
IC102	8-759-340-46	IC HD14046BP	

TRANSISTOR

Q101	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q102	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q103	8-729-266-83	TRANSISTOR 2SC2668	
Q104	8-729-266-83	TRANSISTOR 2SC2668	

RESISTOR

R101	1-249-421-11	CARBON	2.2K	5%	1/4W
R102	1-249-421-11	CARBON	2.2K	5%	1/4W
R103	1-249-427-11	CARBON	6.8K	5%	1/4W
R105	1-215-447-00	METAL	12K	1%	1/6W
R106	1-215-421-00	METAL	1K	1%	1/6W
R107	1-249-437-11	CARBON	47K	5%	1/4W
R108	1-215-437-00	METAL	4.7K	1%	1/6W
R109	1-215-433-00	METAL	3.3K	1%	1/6W
R110	1-215-441-00	METAL	6.8K	1%	1/6W
R111	1-249-417-11	CARBON	1K	5%	1/4W
R112	1-249-431-11	CARBON	15K	5%	1/4W
R114	1-249-421-11	CARBON	2.2K	5%	1/4W
R115	1-249-417-11	CARBON	1K	5%	1/4W
R116	1-249-417-11	CARBON	1K	5%	1/4W
R117	1-249-425-11	CARBON	4.7K	5%	1/4W
R118	1-249-425-11	CARBON	4.7K	5%	1/4W
R119	1-249-425-11	CARBON	4.7K	5%	1/4W
R120	1-215-449-00	METAL	15K	1%	1/6W
R121	1-215-439-00	METAL	5.6K	1%	1/6W
R122	1-249-441-11	CARBON	100K	5%	1/4W

VARIABLE RESISTOR

RV101	1-237-502-21	RES, ADJ, CEREMET 5K	
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• The components identified by Δ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

DDM-2801C/2802C DDM-2801C2/2802C2

GB

GC

HVK

Ref.No	Part No.	Description	Remark
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*1-627-366-11 GB BOARD

*1-564-348-00 PLUG (L TYPE) 5P
*1-564-581-11 PLUG (L TYPE) 6P

CAPACITOR

C201	1-126-247-11	ELECT	560MF	20%	6.3V
C202	1-126-247-11	ELECT	560MF	20%	6.3V

DIODE

D201 8-719-110-16 DIODE RD10ESB1

IC

IC201	8-759-914-44	IC TL431CLPB
IC202	8-759-914-44	IC TL431CLPB
IC203	8-759-133-90	IC UPC339C
IC204	8-759-914-44	IC TL431CLPB

TRANSISTOR

Q201	8-729-180-93	TRANSISTOR	2SD809-F
Q202	8-729-180-93	TRANSISTOR	2SD809-F
Q203	8-729-140-96	TRANSISTOR	2SD774-34
Q204	8-729-119-78	TRANSISTOR	2SC2785-HFE
Q205	8-729-119-78	TRANSISTOR	2SC2785-HFE
Q206	8-729-140-96	TRANSISTOR	2SD774-34

RESISTOR

R201	1-249-417-11	CARBON	1K	5%	1/4W
R202	1-249-417-11	CARBON	1K	5%	1/4W
R203	1-249-417-11	CARBON	1K	5%	1/4W
R204	1-249-417-11	CARBON	1K	5%	1/4W
R205	1-249-428-11	CARBON	8.2K	5%	1/4W
R206	1-249-431-11	CARBON	15K	5%	1/4W
R207	1-215-423-00	METAL	1.2K	1%	1/6W
R208	1-215-423-00	METAL	1.2K	1%	1/6W
R209	1-215-450-00	METAL	16K	1%	1/6W
R210	1-215-431-00	METAL	2.7K	1%	1/6W
R211	1-215-431-00	METAL	2.7K	1%	1/6W
R212	1-215-433-00	METAL	3.3K	1%	1/6W
R213	1-249-429-11	CARBON	10K	5%	1/4W
R214	1-249-429-11	CARBON	10K	5%	1/4W
R215	1-249-423-11	CARBON	3.3K	5%	1/4W
R216	1-249-429-11	CARBON	10K	5%	1/4W

VARIABLE, RESISTOR

RV201 1-237-497-21 RES, ADJ, CERMET 100
RV202 1-237-497-21 RES, ADJ, CERMET 100

*1-627-367-11 GC BOARD

*1-564-348-00 PLUG (L TYPE) 5P
*1-564-349-00 PLUG (L TYPE) 7P

CAPACITOR

C301	1-126-247-11	ELECT	560MF	20%	6.3V
C302	1-126-247-11	ELECT	560MF	20%	6.3V

DIODE

D301 8-719-110-16 DIODE RD10ESB1
D302 8-719-110-16 DIODE RD10ESB1

Les composants identifiés par une trame et une marque Δ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark
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IC

IC301	8-759-914-44	IC TL431CLPB
IC302	8-759-914-44	IC TL431CLPB
IC303	8-759-133-90	IC UPC339C

TRANSISTOR

Q301	8-729-180-93	TRANSISTOR	2SD809-F
Q302	8-729-180-93	TRANSISTOR	2SD809-F
Q303	8-729-119-78	TRANSISTOR	2SC2785-HFE
Q304	8-729-140-96	TRANSISTOR	2SD774-34
Q305	8-729-119-78	TRANSISTOR	2SC2785-HFE
Q306	8-729-140-96	TRANSISTOR	2SD774-34

RESISTOR

R301	1-249-417-11	CARBON	1K	5%	1/4W
R302	1-249-417-11	CARBON	1K	5%	1/4W
R303	1-249-417-11	CARBON	1K	5%	1/4W
R304	1-249-417-11	CARBON	1K	5%	1/4W
R305	1-249-428-11	CARBON	8.2K	5%	1/4W
R306	1-215-423-00	METAL	1.2K	1%	1/6W
R307	1-215-423-00	METAL	1.2K	1%	1/6W
R308	1-215-433-00	METAL	3.3K	1%	1/6W
R309	1-215-433-00	METAL	3.3K	1%	1/6W
R310	1-215-435-00	METAL	3.9K	1%	1/6W
R311	1-249-428-11	CARBON	8.2K	5%	1/4W
R312 Δ		METAL			1/6W
R313 Δ		METAL			1/6W

VARIABLE, RESISTOR

RV302 1-237-497-21 RES, ADJ, CERMET 100

K BOARD, COMPLETE

4-391-550-01 SCREW (M5X15) (A), LOCK
*4-341-751-01 EYELET (EY4-EY9)
*4-341-752-01 EYELET (EY1-EY3)

CAPACITOR

C1	1-136-103-00	FILM	0.1MF	5%	200V
C2	1-130-336-51	FILM	0.0068MF	5%	630V
C3	1-162-115-00	CERAMIC	330PF	10%	2KV
C4	1-136-105-00	FILM	0.33MF	5%	200V
C5	1-136-105-00	FILM	0.33MF	5%	200V
C6 Δ	1-236-285-11	CR BLOCK, HIGH-VOLTAGE (HB-330)			
C7	1-162-116-00	CERAMIC	680PF	10%	2KV
C8	1-162-116-00	CERAMIC	680PF	10%	2KV
C9	1-124-126-00	ELECT	47MF	20%	25V
C10	1-129-898-00	FILM	0.0022MF	5%	630V
C11	1-130-336-51	FILM	0.0068MF	5%	630V
C12	1-123-267-00	ELECT	2.2MF	20%	160V

PLUG

CNK-1*1-508-767-00 PIN, CONNECTOR (5MM PITCH) 5P
CNK-2*1-564-510-11 PLUG CONNECTOR 7P
CNK-5*1-508-784-00 PIN, CONNECTOR (5MM PITCH) 1P

DIODE

D1	8-719-901-19	DIODE	V11N
D2	8-719-971-20	DIODE	ERC38-06
D3	8-719-901-19	DIODE	V11N

DDM-2801C only ; Serial No. up-to 10.091

The components identified by Δ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation.

Should replacement be required, replace only with the value originally used.

Les composants identifiés par une trame et par une marque Δ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

DDM-2801C/2802C
DDM-2801C2/2802C2

HVK U

Ref.No	Part No.	Description	Remark
<u>COIL</u>			
L1	1-421-370-00	CHOKE COIL	12UH
L2	1-410-068-11	INDUCTOR	5.6MMH
L3	1-421-370-00	CHOKE COIL	12UH
L4	1-410-068-11	INDUCTOR	5.6MMH
<u>TRANSISTOR</u>			
Q1	8-729-927-31	TRANSISTOR IRF520	
	4-875-726-00	SHEET, INSULATING, (Q1)	
	4-382-854-11	SCREW, (M3X10) P, SW (+), (Q1)	
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q3	8-729-119-76	TRANSISTOR 2SA1175-HFE	
<u>RESISTOR</u>			
R1	1-215-933-11	METAL OXIDE	33 5% 5W F
R2	1-215-933-11	METAL OXIDE	33 5% 5W F
R3	1-214-925-00	METAL	330K 1% 1/2W
R4	1-249-441-11	CARBON	100K 5% 1/4W
R5	1-202-824-00	SORID	3.3K 10% 1/2W
R6	1-249-441-11	CARBON	100K 5% 1/4W
R7	1-249-441-11	CARBON	100K 5% 1/4W
R8	1-249-441-11	CARBON	100K 5% 1/4W
R9	1-249-441-11	CARBON	100K 5% 1/4W
R10	1-249-441-11	CARBON	100K 5% 1/4W
R11	1-249-405-11	CARBON	100 5% 1/4W
R12	1-249-421-11	CARBON	2.2K 5% 1/4W
R13	1-249-411-11	CARBON	330 5% 1/4W
R14	1-213-048-00	FUSIBLE	3.3 5% 1W F
R15	1-202-824-00	SORID	3.3K 10% 1/2W
R16	1-202-824-00	SORID	3.3K 10% 1/2W
<u>SPARK GAP</u>			
SG1	1-519-063-XX	DISCHARGING GAP	
SG2	1-519-063-XX	DISCHARGING GAP	
<u>TRANSFORMER</u>			
T1	Δ 1-439-442-11	TRANSFORMER ASSY, FLYBACK	
T2	Δ 1-439-445-11	TRANSFORMER ASSY, FLYBACK	
T3	Δ 1-439-440-11	TRANSFORMER ASSY, FLYBACK	

U BOARD, COMPLETE			

DDM-2801C; Serial No. 2,000,044 and higher			
DDM-2802C; Serial No. 2,000,021 and higher			
DDM-2801C2; Serial No. 2,000,050 and higher			
DDM-2802C2; Serial No. 2,000,013 and higher			
<u>CAPACITOR</u>			
C201	1-135-152-21	TANTAL CHIP	1.5MF 10% 25V
C202	1-135-152-21	TANTAL CHIP	1.5MF 10% 25V
C203	1-135-152-21	TANTAL CHIP	1.5MF 10% 25V
C204	1-135-152-21	TANTAL CHIP	1.5MF 10% 25V
<u>PLUG</u>			
CNU-4*1-564-511-11		PLUG, CONNECTOR 8P	
CNU-5*1-564-505-11		PLUG, CONNECTOR 2P	
CNU-6*1-564-513-11		PLUG, CONNECTOR 10P	
<u>FILTER</u>			
FL2	1-236-071-11	ENCAPSULATED COMPONENT	
FL3	1-236-071-11	ENCAPSULATED COMPONENT	
FL4	1-236-071-11	ENCAPSULATED COMPONENT	
FL5	1-236-071-11	ENCAPSULATED COMPONENT	
FL6	1-236-071-11	ENCAPSULATED COMPONENT	

Ref.No	Part No.	Description	Remark
FL7	1-236-071-11	ENCAPSULATED COMPONENT	
FL8	1-236-071-11	ENCAPSULATED COMPONENT	
FL9	1-236-071-11	ENCAPSULATED COMPONENT	
FL11	1-236-129-11	ENCAPSULATED COMPONENT	
FL12	1-236-129-11	ENCAPSULATED COMPONENT	
FL13	1-236-129-11	ENCAPSULATED COMPONENT	
FL14	1-236-129-11	ENCAPSULATED COMPONENT	
FL15	1-236-129-11	ENCAPSULATED COMPONENT	
FL16	1-236-129-11	ENCAPSULATED COMPONENT	
<u>IC</u>			
IC201	8-759-929-62	IC LM7812CT	
	4-381-906-01	SPRING (F), (IC201)	
	4-391-519-01	SHEET (E) INSULATOR, (IC201)	
IC202	8-759-929-65	IC LM7912CT	
	4-381-906-01	SPRING (F), (IC202)	
	4-391-515-01	SHEET (E) INSULATOR, (IC202)	

<u>MISCELLANEOUS</u>			

Δ 1-238-341-11		RESISTOR ASSY, HIGH VOLTAGE	
1-426-389-11		COIL, LANDING CORRECTION	
Δ 1-453-111-12		DTC BLOCK HIGH VOLTAGE	
Δ 1-540-066-11		INLET, AC (3 P)	
Δ 1-571-688-11		SWITCH, SEESAW (AC POWER)	
Δ 1-541-449-21		FAN, DC (WITH SENSOR)	
*1-555-110-00		CABLE, PIN	
1-562-576-11		ADAPTOR, CONVERSION BNC	
*1-574-162-11		CABLE, CONNECTION	
*1-574-163-11		CABLE, CONNECTION	
*1-574-164-11		CABLE, CONNECTION	
*1-574-165-11		CABLE, CONNECTION	
*1-574-166-11		CABLE, CONNECTION	
*1-574-167-11		CABLE, CONNECTION	
L901 Δ 1-426-390-11		COIL, DEMAGNETIZATION	
V901 Δ *8-735-021-71		PICTURE TUBE (32SF-A1)	

<u>ACCESSORIS & PACKING MATERIALS</u>			

*X-4391-527-1		PLATE ASSY, BOTTOM (DDM-2801C/2801C2 only)	
X-4391-545-1		BOARD, ASSY, BOTTOM (DDM-2801C/2802C2 only)	
Δ 1-551-812-11		CORD, POWER	
3-786-534-01		MANUAL, INSTRUCTION	
*4-029-197-01		BAG, PROTECTION	
4-394-557-01		CUSHION (FRONT) (DDM-2801C/2802C2 only)	
4-394-559-03		CUSHION (UPPER) (DDM-2802C/2802C2 only)	
*4-391-563-01		LID (DDM-2801C/2802C2 only)	
*4-391-564-01		FRAME (DDM-2801C/2801C2 only)	
*4-391-566-01		CUSHION (UPPER) (DDM-2801C/2801C2 only)	
*4-391-572-01		BAND	
4-394-586-01		LID (DDM-2802C/2802C2 only)	
*4-603-966-01		STOPPER (LARGE), SPEED	

DDM-2801C/2802C
DDM-2801C2/2802C2